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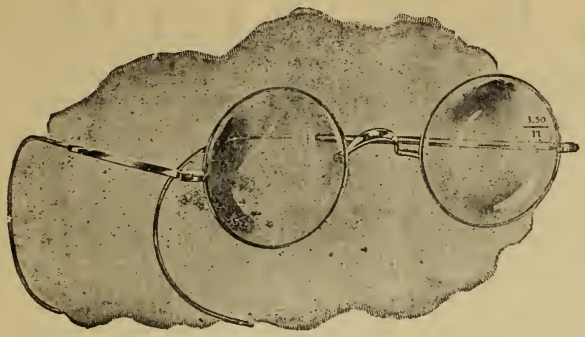

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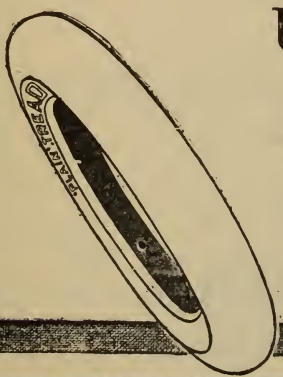

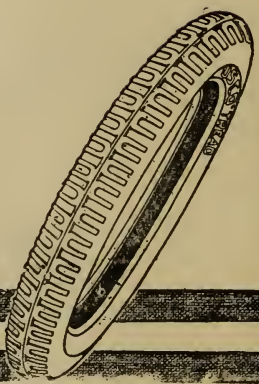

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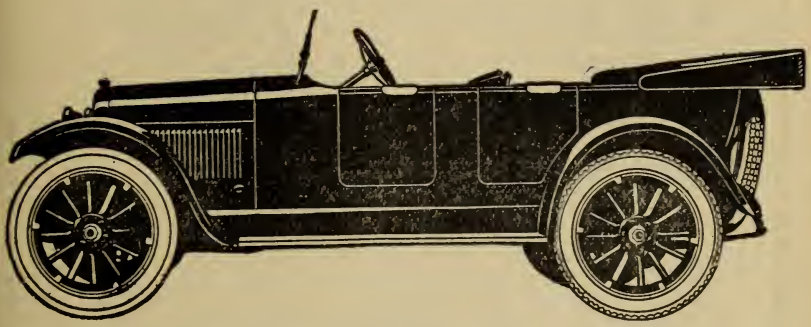

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CATHARINE'S PEAK, FROM CINCHONA

KINGSTON HARBOUR, FROM CINCHONA

JAMAICA IN 1922

A HANDBOOK OF INFORMATION FOR INTENDING SETTLERS AND VISITORS WITH SOME ACCOUNT OF THE COLONY'S HISTORY

BY

FRANK CUNDALL, F.S.A.

Secretary and Librarian of the Institute of Jamaica.

EIGHTH YEAR OF ISSUE.

KINGSTON JAMAICA:

THE INSTITUTE OF JAMAICA.

Agents in London:—H. SOTHERAN & CO., 140 STRAND W.C. & 37, PICCADILLY, W

1922.

WELCOME TO THE TOURISTS.

Here's a welcome to the tourist
On this fair West Indian Isle,
May you find the skies above you
Just one bright eternal smile;
May the mountains and the valleys,
And the climate, and the sea,
Prove as full of balm and beauty
As you fancied they would be.

But remember in your seeking
After pleasure, this one thing:
You will find no more contentment
Anywhere than what you bring.
If you take your pack of troubles
Always with you while you roam,
You might better save your money,
And your time, and stay at home.

So just drop it in the ocean
As you sight this summer port,
And come smiling into harbour
With a heart for any sport.
Just forget the snows and blizzards,
And the worries left behind,
Meet the Eden of Jamaica,
With an Eden of the mind.

From "Sailing Sunny Seas" By Ella Wheeler Wilcox.

PREFACE.

THE present issue is the eighth edition of a work, compiled with a view to giving in a handy form such particulars concerning the island as may prove useful, chiefly to those who think of making Jamaica their home, which first appeared under the title "Jamaica in 1905, a brief handbook of information for intending settlers and others." The notes for visitors have been somewhat extended.

Since the publication of the last issue the West Indies have been brought under public notice, especially in connection with closer relationship with Canada, federation amongst themselves and a desire for political advance in the colonies themselves.

Thanks are due to those who have assisted in the compilation of this edition. Their names are recorded in the text.

F. C.

Institute of Jamaica,
Kingston, Jamaica.
March, 1922.

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JAMAICA IN 1922.

I.—GEOGRAPHY.

JAMAICA is an island situated towards the north of the Caribbean Sea, and in the centre of what the Americans call the American Mediterranean, *i.e.*, the Gulf of Mexico and the Caribbean Sea conjoined. It is the third in size (Cuba and Hispaniola* being larger and Porto Rico smaller) of the four Greater Antilles, which probably once formed one island, but possibly were never connected with the mainland, although some trace a past connection between Jamaica, Honduras and Nicaragua. The Greater Antilles consist of a disconnected chain of mountains, of which about two-thirds of their altitude are now beneath the sea. Measured from the deep sea plain from which they rise, they exceed any heights in Europe or North America; and, if their submerged slopes be added, they must be classed amongst the great ranges of the world. Economically they are valuable because they are not composed of barren rock but have cultivable soil up to their very summits. The average depth of Bartlett's Deep, between Jamaica and the Cayman Islands, is 18,000 feet. The latitude of Kingston is 17 degs. 57' north, and the longitude is 5 hours 7 min. west of Greenwich. Kingston harbour, the finest in the West Indies, has a total area of about sixteen square miles, of which about seven square miles have a depth of from seven to ten fathoms. The rise and fall of the tides around the coasts of the island do not exceed 16 inches.

The result of the completion of the Panama Canal, uniting the Atlantic with the Pacific, has yet to be seen, as normal conditions of shipping were upset by the great war. As the invention of steam navigation altered materially the aspect of marine warfare, robbing incidentally Barbados of its strategic position as guardian of the Caribbean, so has the opening of the Panama Canal necessitated the revision of strategic plans, not only in its immediate neighbourhood but throughout the world. From a strategic point of view, Jamaica was called by Captain Mahan "certainly the most important single position in the Caribbean Sea." It is, as a reference to the map shows, approximately equidistant from the Yucatan channel, which leads from the Caribbean into the Gulf of Mexico; from Grey Town, which would be the eastern entrance of any Nicaraguan canal built between the Atlantic and the Pacific; from Colon, the eastern entrance of the Panama Canal; from Cartagena, the largest and most flourishing mercantile port in the neighbourhood of the Isthmus, and from the Mona Passage which

*The island containing Hayti and Santo Domingo

connects the Caribbean and the Atlantic between Hispaniola and Porto Rico. Its relation to the Windward Passage between Cuba and Hayti is still closer and more organic. It is 554 miles from Kingston to Colon. As to the commercial side, it is undoubted that when the ships of the world begin to traverse the canal the produce of the Pacific side of the Americas will be carried through it to Europe, with the United States second only to Great Britain in commercial navigation. Oil tanks for the supply of ships have recently been erected at the head of Kingston harbour.

The island of Cuba, now under the aegis of the United States, is 90 miles to the north of Jamaica; and Cape Gracios a Dios, in the Mosquito Territory, 400 miles south-west of the west end of the island, is the nearest part of the continent of America.

Jamaica is 4,207 square miles in extent, having an extreme length of 144 miles, and an extreme width of 49 miles. It is very mountainous, especially in the eastern part. The Blue Mountain Peak, 7,360 feet high, is the highest point in the island and in the British West Indies. It is only 200 feet lower than the Pico de Turquino, the highest point in Cuba; but more than one mountain range in the neighbouring island of Hispaniola overtops it by nearly 3,000 feet; Monte Tina, the highest point in the Antilles, rising to 10,300 feet high.

In its general geological formation,* the foundation of the island is composed of igneous and metamorphic rocks, overlying which are several distinct formations—white and yellow limestone and carbonaceous shales, some being mineral-bearing.

Iron and copper exist in many parts. Lead, zinc, manganese and gold are found in small quantities. Mining operations have been carried on from time to time in upper Clarendon. Throughout the interior there is a great abundance of good clay suitable for brick-making and ordinary pottery; and there is a good supply of lime and ochres both red and yellow, the latter of which might be made of considerable commercial importance.

The eastern part of Jamaica is much more elevated than the other portions and has a different formation; coral and yellow limestones blending with the coast limestones. The southern slopes of the hills in this part are generally easy, but on the north they descend abruptly. The north-east coast range which divides the Rio Grande from the sea, usually known as the John Crow mountains, reaches an elevation of 3,000 feet. These mountains are an offshoot from the central range, which, from the depression known as the Cuna Cuna Gap, turns suddenly northward and forms itself into this plateau. Many of the subordinate ridges of the Blue

*The best works to consult on the geology of Jamaica are: (i) "Memoirs of the Geological Survey. Reports on the geology of Jamaica. By James G. Sawkins, London, 1866." (ii) "The Geology and Physical Geography of Jamaica. By Robert T. Hill, Cambridge, Mass., 1899." (iii) "The Economic Geology of Jamaica. By F. C. Nicholas, Kingston, Ja., 1899."

Mountains vie with the main ridge in elevation, especially the great ridge starting from Catherine's Peak, and culminating at considerable elevations at Newton and Bellevue.

Marble is found in the east end, at Serge Island and at Island Head and elsewhere.

On the northern side of the island, three great ridges may be mentioned; one extending through Portland from Blue Mountain Peak; another, starting from Silver Hill, dividing the Buff Bay and Spanish Rivers, and the third extending from Fox's Gap in a north-easterly direction through Hay Cock Hill to Dover. The only volcanic remains in the island are found on a spur from the ridge running towards the sea at Retreat, near Hope Bay.

The Hope river almost certainly caused the tract of alluvial formation now called the Plain of Liguanea, bordering on Kingston Harbour, which tract continuing west to Old Harbour, is traversed by the Rio Cobre. This river evidently at different times traversed the plain of St. Catherine in every direction. At Passage Fort it is making land at its delta as rapidly as it formerly did at Hunt's Bay: already the sea is three-quarters of a mile further off than it was in 1838, and there is no doubt that in the course of time the whole of Hunt's Bay will be filled up.

St. Mary is well supplied with rivers and is consequently cut up by ridges; the highest part of this parish is the district of Guy's Hill (elevation 2,000 feet).

St. Ann is nearly all white limestone; there is a curious basin near Moneague where the Walton lake appears and disappears spasmodically, having been much in evidence during 1916-18. In this parish there are many caves and sink holes. The Cave and Yankee rivers sink at Greenock estate, and are supposed to run underground for upwards of 13 miles, and emerge near Stewart Town as the Rio Bueno.

The Clarendon mountains consist chiefly of trap formation. This parish furnishes the largest continuous upland flat in the island, measuring 132 square miles—traversed by the Rio Minho and the Milk River. The most prominent mountain in Clarendon is Bull Head, generally considered the centre of the island.

The formation of Manchester is almost identical with that of St. Ann—white limestone. It rises gradually from east to west, where it attains an elevation of 2,900 feet. In this parish, where yellow limestone is seen, water may be found at no great depth, notably at Mile Gully and Epping Forest.

Trelawny has a considerable stretch of white limestone. The Martha Brae river is probably fed by the water drained from the Cockpit district; it rises in a great volume at Windsor. In the south-east of this parish is a rich black mould in the trap formation. The Cockpits, a curious formation of a number of basins placed in close proximity (which afforded effectual protection to

the maroons* when they were in rebellion more than once), extend from the south-west of Trelawny through parts of St. James and St. Elizabeth.

The distinctive features of St. Elizabeth are the extensive swamps: probably the valley from Lacovia to the boundary of Manchester was once a lake. The Santa Cruz mountains are parallel with the mountains of Manchester, but not so high. In both cases the steeper slope is on the western side. The Santa Cruz mountains form steep cliffs running nearer the coast than any other mountains in the island. The Black River is navigable for 25 miles and conveys the produce of a large district to the sea.

The Dolphin Head is a useful landmark for vessels entering the harbours of Savanna-la-Mar and Lucea.

In the northern part of Westmoreland, in Hanover and in St. James, good building stone is quarried.

There are numerous savannas, or plains, on the sea-board, and also a few inland shut in by hills on all sides.

The colony is divided into three counties, Surrey, Middlesex and Cornwall, and exceeds in area the English counties of the same names by about the extent of Hampshire. The population was ascertained by census in 1921 to be 858,118, being an increase of 26,735 over the enumeration of 1911.

County.	Parish.	Population.	Chief Town.	Population.
Surrey	Portland	48,970	Port Antonio	6,272
	St. Thomas ...	42,501	Morant Bay	2,433
	St. Andrew ...	54,598	Halfway-Tree ...	†25,337
	Kingston	62,707	Kingston	62,707
	Port Royal	1,004	Port Royal	1,004
Middlesex	St. Mary	71,404	Port Maria	2,481
	St. Ann	70,922	St. Ann's Bay ...	2,090
	St. Catherine ..	96,590	Spanish Town ...	8,694
	Clarendon	82,555	Chapelton	781
	Manchester ...	63,945	Mandeville	1,662
Cornwall	Hanover	38,240	Lucea	1,329
	St. James	41,946	Montego Bay	6,580
	Trelawny	34,602	Falmouth	2,136
	St. Elizabeth ..	79,281	Black River	1,378
	Westmoreland ...	68,853	Savanna-la-Mar ..	3,442

*From the Spanish Cimarron, wild unruly, literally living in the mountain-tops; from Cima, a mountain-top.

†Within a three mile limit.

As in 1911 and 1891, St. Catherine was found to have the largest number of inhabitants, and (omitting Port Royal) Trelawny has still the smallest. Five parishes, Portland, St. Mary, Trelawny, Manchester and Port Royal, show a decrease.

Every parish in the island has a fair share of the sea-board, on which, with four exceptions (Halfway-Tree, Spanish Town, May Pen and Mandeville), its chief town is situated.

The population of Jamaica, was according to the censuses in 1891, 1911 and 1921, as follows:—

	1891	1911	1921
White	14,692	15,605	14,467
Coloured	121,955	163,201	157,166
Black	488,624	630,181	660,250
East Indians	10,116	17,380	18,846
Chinese	481	2,111	3,696
Colour not stated	3,623	2,905	3,693
Total	639,491	831,383	858,118

On comparison it will be seen that in the decade between 1911 and 1921 the White and Coloured population have decreased, whilst the Black and other inhabitants have increased. During the decade a much larger increase has occurred amongst females than amongst males.

The census of 1921 gives a population of 203 to the square mile. Jamaica is more populous in proportion to its size than Spain, Turkey, Russia and some other European countries. The population of Cuba is 49 to the square mile. That of the Republic of San Domingo is about 31.

The hurricanes of the West Indies, for which they have an unfortunate notoriety, emerge probably from the region of equatorial rains between the lesser Antilles and the African coast, and first appear in the Windward Islands, moving in a direction between west and north-west at a rate of about ten or twelve miles an hour, and recurve to northward and then north-eastward in the neighbourhood of Florida. Their advent is usually announced by a long swell in the ocean, and a slight rise in the barometer before the gradual fall. At first the air is calm and sultry, followed by a slight breeze which soon developes into a gale. Compared with the storms of temperate regions they are more restricted in area and more intense in destructive qualities, and their rate of movement is less. They vary in duration and continuity from two to, in extreme cases, thirty-seven days. The general courses of West Indian cyclones vary with the month. An old saying runs:—

"June too soon, July stand by,
August look out you must,
September remember,
October all over."

A diagram based on a 300 years' record shows, however, that June is not always too soon, and that in October it is not always all over. As the season advances, the track of the hurricanes has a tendency to shift further west. The north-east tradewind prevails over the Caribbean Sea, but on the south side of Jamaica the prevailing wind is from the south-east. The continuance of this wind in the days of sailing ships made communication from the Lesser Antilles to Jamaica very easy, and communication from Jamaica to them very difficult. On the shores of the Greater Antilles the sea breeze blows during the day and the land breeze at night: the one locally called "the doctor" the other "the undertaker", from their health-giving and fever-producing qualities. In the latter case the effects are probably exaggerated. So soon after the discovery of the western world did navigators become acquainted with prevailing winds and ocean currents that, Oviedo tells us, in 1552 two caravels took but twenty-five days in passing from St. Domingo to the river of Seville; and Drake sailed from Cape Florida to the Scilly Isles in twenty-three—albeit these were "record" rather than average passages.

Residents in the West Indies become accustomed to slight shocks of earthquake but it is only occasionally that they do severe damage as in the case of Kingston, Jamaica, in 1907. But little is known at present concerning these at times awful phenomena of Nature. History tells us that they are sometimes accompanied by storms and sometimes come in weather all too calm, and the theory which connects them with meteorological changes is at present speculative. It seems tolerably certain, however, that those earthquakes which are not due to volcanic origin are caused by the formation of geological faults in the earth's crust at a greater or less distance below the surface.

The annual rainfall of the principal islands of the West Indies varies from the 118.33 inches of Dominica to the 31 of Antigua.

There is, as a rule, less rain in Kingston than in most of the other parts of the island, the trade winds being drained of their moisture by the mountains to the north and east of the city. The heaviest precipitation occurs in the parish of Portland, which forms the north-eastern extremity of the island.

There are two principal rainy seasons, namely in May and October, but there is usually more or less rain all through the summer months. In the winter months in the neighbourhood of Kingston the precipitation is very light. The rain usually comes in heavy showers of only a few hours' duration, and the days during which the sun does not shine at all are very rare. It is almost always possible to predict when the rain is coming, as it can be seen some time before the downpour begins. This is fortunate for visitors, as a wetting is one of the three things that an unacclimated person in the tropics must avoid, the other two being ex-

IGUANA LIZARD

JAMAICA CONY

posure to the direct rays of the noonday sun and to the cool night air.

It should be added that at the same temperature, there is nearly always far more moisture in the air in Jamaica than there is in higher latitudes. It follows that the direct heat of the sun is felt less here than it is at the same temperature in New York or London; and this accounts to a great extent for the fact that sunstroke, which is often fatal in these cities during hot weather, is practically unknown in Jamaica. The greatest heat recorded in Kingston is 97.5 on the 9th of August, 1919. During the last twelve years the greatest fall of rain in Kingston on one day was 8.93 inches, in one month 30.45 ins. and in one year (1909) 68.11 inches: but Kingston has the lowest record of all the rain stations in the island, barely one-half of the average island's rainfall.

The climatic characteristics of any particular district or altitude are remarkably constant, the changes from season to season being gradual and very moderate, in striking contrast to the alterations experienced in higher latitudes. Broadly speaking, fine cloudless mornings, chequered cloud at noon, fine sunny evenings and bright nights constitute the daily weather with singular regularity all the year round, interrupted only by the rainy seasons above mentioned. Of course, as in all other countries, there is no complete exemption here from variable weather as regards rainy and dry seasons. Thus the usual October wet season in 1900 was represented only by a few light showers, while the corresponding season in the previous year was an exceptionally severe one. Light showers are not uncommonly experienced through the summer and winter months. The regular "seasons" (rains) take the form of heavy tropical downpours, with fine, bright intervals, and are rarely so continuous as to prevent one from taking daily out-door exercise.

The accompanying rainfall map is based on observations taken at 194 different stations from about the years 1870 to 1890 which are in substantial accord with the extended observations to 1909, given in the second edition of the "Rainfall Atlas."†

As Maxwell Hall pointed out in his earlier atlas of 1892, the distribution of the rainfall for the year resembles that of October, and varies from thirty to thirty-five inches in a few places to over one hundred inches in the north-eastern division.

There are two stations in the west-central division where the rainfall is over one-hundred inches, namely Great Valley and Windsor Forest; and at Brokenhurst, in Manchester, the rainfall is one hundred inches; the driest stations are on the north-west and south-eastern shores; and the land from Portland Point to

†"The Rainfall of Jamaica from about 1870 to end of 1909, with maps, by Maxwell Hall, M.A., F.R.A.S., F.R. Met., S., Kingston, Jamaica, 1911." Consult also "The Meteorology of Jamaica, by Maxwell Hall, Kingston, Jamaica, 1904."

Kingston is also remarkably dry, with strong surface winds from the south-east. And these dry localities confirm, as it were, the division of the island into eastern and western rainfall regions by a central and drier part extending from Kingston to Rose Hall.

In the variation of yearly rainfall the maxima are due as a rule to excessive "seasons" in May or October. Maxwell Hall traced a connection between the minima and the solar maxima and minima. He considered that there is little connection between forest and rainfall in Jamaica, and that the only parts that might benefit by afforestation are the large dry districts on the southern shore, where, however, the increase in rainfall would not be sufficient to justify the expense of afforestation.

The utility of these maps both to the agriculturists and those in search of health is sufficiently obvious. If the agriculturist wants constant and heavy rains, he will find them as a rule in the parishes of Portland and St. Mary: if he wants heavy summer rains, he will find them in the west-central parts of the island; if he wants a moderate rainfall all the year round, he will find it in the area between Chapelton and Linstead, Albion and Cave Valley. Not that he will, perhaps secure such rainfall in any one year, but, taking one year with another for a series of years, he may count upon the rainfall laid down upon the maps given in the "Rainfall Atlas."

There are many mineral springs in Jamaica, most of them possessing valuable qualities for the cure of various diseases and infirmities of the body. Two of these are particularly famed, namely, the hot sulphurous spring at Bath, and the warm salt spring at Milk River. There are public institutions maintained at both these springs for the benefit of those requiring relief, and at both institutions steps have recently been taken to increase the comfort of visitors.

The spring at Bath, in the parish of St. Thomas, is believed to be the hottest in the island; the temperature at the fountain head is 126 degs. to 128 F., but the water loses about nine degrees of heat in the transit to the bath. These waters are sulphuric and contain a large proportion of hydro-sulphate of lime; they are not purgative, and are beneficial in gout, rheumatism, gravelly complaints, cutaneous affections and fevers.

The bath at Milk River, in the district of Vere, is one of the most remarkable in the world. It is a warm, saline, purgative bath, the temperature is 92 degs. F. It is particularly efficacious in the cure of gout, rheumatism, paralysis, and neuralgia, and also in cases of disordered liver and spleen. Some wonderful results are on record.*

*Much could be done, with capital, to make both Bath and Milk River more attractive and beneficial to visitors, by the provision of easy access to the baths for invalids, and the formation of properly equipped hydropathic establishments with all the modern apparatus and a resident medical officer, and the erection of comfortable hostels in the neighbourhood.

DAM AT SERGE ISLAND

STONE QUARRY KNOCKALVA

The Spa Spring, or Jamaica Spa, as it is called, at Silver Hill, in St. Andrew, was formerly maintained as a government institution, and extensive buidings once existed there, but they are long gone to decay and the spring is neglected. These waters are chalybeate, aerated, cold, tonic, and beneficial in most cases of debility particularly after fever, in dropsy and stomach complaints.

In the parish of Kingston, at Rockfort, there is a mineral spring at the sea edge, but it is not believed to be of any specific medicinal value. In St. Andrew there is a series of springs which come to the surface at Rock Hall Estate near the Ferry, and from the source of the Salt River.

In St. Thomas in the East, at Garbrand Hall, there is a series of warm springs. On the Adam's River, about ¾ of a mile south of Downer's Hut Gap on the main range, there is a spring which belongs to the Crown, and at Moffat there is a spring on the White River, a tributary of the Negro River. In Portland, on the Guava River, about one mile north of Downer's Hut Gap on the main range there is a spring which belongs to the Crown. In St. Ann there is a spring at Windsor, which at one time was very popular, people coming from all parts of the island to get the water. In Hanover, there is a Hot Spring at Buxton on the Cabaritta River. In St. Elizabeth, there is a sulphuric spring at Lower Works near Black River. In St. Catherine, there is at St. Faith's in the St. John's district, a spring on "Good Hope," and another at Manatee Bay. The spring at Port Henderson was once a favourite bath for the inhabitants of Spanish Town. Analysis of the principal mineral springs will be found in the Appendix.

Included in the government of Jamaica are the Turks and Caicos Islands, which geographically form part of the Bahama Islands, to which they at one time belonged; the Cayman Islands of coral formation, which lie from 110 to 150 miles north-west of the west end; the Morant Cays, about 33 miles south-east of the east end of the island; and the Pedro Cays, about 40 miles south-west of Portland Point, the most southerly point of the Island.

The inhabitants of the Turks and Caicos Islands (about 5,000 in number) live almost entirely by the salt industry, the salt being made from the sea by evaporation in salt ponds, which form a large part of the area of the islands, the bulk of it going to the United States: the sea around the Caicos Islands produces sponges, and the conch from which the pink-pearl comes. The Cayman Islanders, who are in the happy position of having no pauper roll, live chiefly by turtling and the exportation of phosphates. The Morant and the Pedro Cays, which are uninhabited, are leased for the purposes of collecting guano, boobies' eggs and turtle. Turk's Islands are reached by the steamers which go to and from Jamaica and Halifax and between Jamaica and England. The Cayman Islanders are

dependent on schooners for communication with Jamaica.

Jamaica and its dependencies comprise a little more than a third of the area, and contain nearly a half of the population of the British West India Islands. But Jamaica is only about a tenth of the size of Cuba, and a seventh of that of Hispaniola.

II.—THE COLONIZATION OF THE CARIBBEAN.

True as it may be that, if Columbus had not discovered the Western Hemisphere as the result of a definite attempt to reach the East by a western route, and Cabot had not, with the same object in view, a few years later reached either Labrador or Newfoundland, that Cabral would have discovered the southern continent of America by accident in 1500, being blown from his eastern route across the Atlantic till he struck Brazil, the fact remains that it was the indomitable Genoese who, by his persistent pursuit of his life's dream and the thorough investigation which he made of the islands now known as the West Indies, literally gave a new world to the old and materially altered its history.

Thanks in great measure to Columbus, Philip II. of Spain was the first monarch who could boast that the sun never set upon his dominions. The Philippine Islands (Las Islas del Poniente) were for the first three centuries of their recorded history (as they now are) a dependency of America, then of New Spain, now of the United States.

The islands and tracts of land which now form the British West Indies, scattered as they are over a large expanse of sea, and interspersed among colonies of other European countries and independent states, offer, as they always have offered, serious difficulties where questions of government or co-operation are concerned; and yet, all things considered, life in them all is closely related. Considering the distance that separates their northern limit from their southern, their eastern from their western bounds plants, animals, scenery, persons, houses, clothing are all somewhat similar, and the marine fauna has something in common with that of the Pacific, telling of a time when no Isthmus of Panama prevented the mingling of the two American oceans. From the western division of British Honduras to Barbados (the most eastern island of the Caribbean) is some 2,000 miles, and from the north of the Bahamas to the south of British Guiana it is about the same distance. These countries—islands in the Caribbean Sea and parts of the adjacent mainland—that are united under the British flag represent an area of nearly 120,000 square miles and a population of nearly 2,000,000 persons.

In size British Guiana easily heads the list; in population Jamaica takes first place. Some of the West Indian Islands are amongst Britain's oldest colonies, Newfoundland and Bermuda (which is occasionally reckoned with the West Indies), however, being older than any of them.

The Spaniards, with better reason for their designation than the English, called the whole of the eastern chain of islands from

St. Thomas to Trinidad, the Leeward Islands, from their exposure to the prevailing north-east trade-wind, while they called the Greater Antilles (Porto Rico, Hispaniola, Cuba and Jamaica), lying behind them and the small islands off the southern mainland, the Windward Islands. The English devoted the latter name to the islands south of Guadeloupe down as far as Grenada, and the former to those to the north of it. Politically, the division is slightly different. The Leeward Islands comprise the northern group from Dominica to the Virgin Islands; the latter St. Lucia, St. Vincent, the Grenadines and Grenada.

When Columbus explored the Antillean Islands and a small part of the southern continent of America, he found them peopled by several tribes of natives, of which the most important were the Caribs and the Arawaks. The former, a fierce, man-eating people, who have given their name to the Caribbean Islands and Caribbean Sea, inhabited the mainland in the neighbourhood of Guiana and the Lesser Antilles (the Windward and the Leeward Islands as we now call them); and the latter, a quiet, inoffensive tribe (as their name "meal-eaters" signifies), resided in the Greater Antilles, whither they had probably come in prehistoric times from the southern continent of America. The Caribs had by the last decade of the fifteenth century driven the Arawaks from the Lesser Antilles, and would probably, but for Spanish intervention, have forced them also to leave the larger islands.

As in Hispaniola, the natives of Jamaica were ruled over by caciques or chieftains. The estimates of historians of the number of inhabitants in the West Indian islands differ widely. The pious Las Casas, who on his errands of mercy to the native Indians crossed the Atlantic no less than sixteen times, says that the island abounded with inhabitants as an ant-hill with ants, and puts them down at six millions. But Peter Martyr gives but 1,200,000 to Hispaniola, and, taking this as a guide, there would probably have been about 600,000 in Jamaica—or, roughly speaking two-thirds of its present population. Of these but few were left when the English took the island in 1655. Until 1895 but few remains had been discovered to testify to the existence of a tribe which not so very long ago lived by gathering fruits of the land and sea of Jamaica. During that and following years several collections of Indian remains were found.* They are scattered fairly throughout the island, except, curiously enough, the eastern end, and are thickly grouped in St. Andrew and Vere, and the west end of Westmoreland. They all supply objects similar in character, and giving evidence of no very high advance in civilization or the arts; being considerably below those of Mexico and Peru. They consist for the most part of petaloid or almond-shaped polished celts of metamorphic or igneous rocks, found somewhat abundantly all over the island; cir-

*For this subject consult "Aboriginal Indian Remains in Jamaica. By J. E. Duerden, A.R.C.Sc., Kingston, Ja., 1897."

cular or oval, shallow, unglazed bowls of baked pottery, with but crude ornamentation, used in the preparation of food, and some as mortuary vessels for the heads of their chiefs—found here and there in the caves and on the sites of dwellings; calcedony beads; stone and a few wooden images and rock-carvings and rock-pictures; and a few shell and flint implements, and occasionally mealing-stones.

Judged by the English standard, Indians are short in stature. The Arawaks of Guiana to-day are described as being of a red cinnamon in colour. The hair on the scalp is thick, long, very straight, and very black. The features of the face are strikingly like those familiarly known as Chinese (Mongolian) and the expression is decidedly gentle. Physically they are weak, and life hardly ever exceeds fifty years. The natives of Jamaica—as a few skulls found from time to time testify—possessed, in common with other West Indian tribes, the peculiarity of tying boards on to the foreheads of their children in such a way that the skulls assumed and permanently retained an extraordinarily flat shape.

Peter Martyr, who heard it spoken, said that the language in the Greater Antilles was "soft and not less liquid than the Latin," and "rich in vowels and pleasant to the ear." Of words of West Indian origin, those most frequently in use in the English language are avocado (aguacate pear), barbecue, buccaneer, canoe, Carib, and its derivative cannibal, guava, hammock, hurricane, iguana, maize, manatee, pirogue, potato and tobacco.

Columbus has told us of a cacique of Cuba who believed in a future state dependent on one's actions in this world, but Sir Everard im Thurm found nothing of the kind amongst the Indians of Guiana, and it is probable that Columbus's guide from Guanahani (Watling Island) only partially understood the cacique, or that Columbus only partially understood his guide. Their houses were primative, alike in shape and construction. In Jamaica, they were probably circular, and were provided with walls of wattle work plastered with mud, and with a high-pitched roof of palm leaves; they probably had no windows. The Indians slept in hammocks. The weapons of the Arawaks of Jamaica and the other large islands consisted of darts and war clubs; but they apparently did not possess bows and arrows, which were the form of weapons prepared by the Caribs, and the use of which gave them a great advantage over their more peaceful foes.

Ornaments were more worn by the men than the women. Painting was the simplest form of ornamentation; the colours used being blue, black, carmine, white and yellow, derived from plants and earths. They wore necklets of hogs' teeth and stone beads, crowns of feathers in their heads, aprons of palm-leaves or woven cotton; and bands round their arms and legs. Their chief occupations and means of living were hunting and fishing and agricultural

pursuits, with, in some cases, a certain amount of trading. As they required nothing more than canoes for travelling on the water, simple houses to live in, baskets for domestic purposes, hammocks for rest, rude weapons of the chase, and implements such as hatchets and chisels, earthen vessels, and a few ornaments and articles of dress, these with a few crude rock-carvings, formed the sum total of their arts and manufactures.

On his first voyage Columbus discovered several of the Bahama Islands, his first landfall being Watling Island, on October 12, 1492, and skirted the northern shores of Cuba and Hispaniola, touching only as it were the fringe of the West Indies. On his second, starting in the following year, he struck Guadeloupe, skirted the northern islands of the Lesser Antilles (the present Leeward Islands) and after revisiting Hispaniola and Cuba (this time on the southern shore) struck south in search of an island which he was told possessed much gold, and discovered Jamaica on May 3 in the following year. On his third voyage he discovered Trinidad, Grenada and Tobago. On his fourth and last voyage he skirted the Lesser and Greater Antilles from Martinique to Cuba, visited the Isles of Pines off Honduras, and ran down the coast of Central America and the Isthmus; and on his return drove his weather-beaten and worm-eaten caravels aground near St. Ann's Bay,* Jamaica. During an enforced residence of twelve months he and those with him would, under ordinary circumstances, have had ample opportunity of studying the habits and customs of the natives. But he was too ill in body and worried in mind to devote much time to descriptive accounts.

Columbus gave to the islands which he discovered names in honour of his sovereigns, the saints, some towns in Spain, or the day of discovery; but in some cases the aboriginal names have survived, such as Cuba, Hayti and Jamaica, and in a French form Martinique (Matinino). Native names of places still survive in many cases: *e.g.* Arima (water), Naparima (no water) in Trinidad; and Parima, a salt-water lake in British Guiana.

We can without much difficulty picture to ourselves the appearance of the islands as Columbus saw them, for there are in many of them tracts of virgin forest and uncleared bush which must still resemble the features which they presented to their first explorers, and the humblest form of a house to-day is not, when viewed from a distance and through trees, very different in outward appearance from the habitations of the aborigines. Seen from the sea the physical features of the islands were, of course, what they are to-day. It is probable that in parts, such as the

*Tradition points to Don Christopher's Cove as the site, but its exposed position is against it, and Columbus more probably sought shelter in the mouth of the Drax Hall river. Moreover Don Christopher's Cove, as well as the cove with the same name in St. Mary, was possibly named after Cristoforo Ysassi, the last Spanish Governor, who spent much time in the neighbourhood.

backwoods of Guiana, Honduras, Dominica and Trinidad, the trees and undergrowth were as thick as they were in Guadeloupe, where Columbus tells us some of his seamen lost their way for days, and this thick growth was conducive to a humid atmosphere and a less parched appearance in the drier seasons than is seen in Barbados, Jamaica and Antigua, and other islands where much clearing has been done in order to cultivate at first cotton, indigo and tobacco, then sugar, and lastly bananas.

Then, as now, in Jamaica the giant cotton-tree, one of the few deciduous trees in the island, reared its head above its fellow trees; and prominent in the landscape were, to name but a few, the calabash, the antidote cacoon, with its highly polished seed-pods, the locust tree, the prickly pear, the allspice-yielding pimento, the guava, and dildoes and pinguins, still much in evidence. In the interior were the wild olive, the lace-bark, with its muslin-like fibre frequently used as a textile, the yacca and the mahoe (both beautiful cabinet woods), and the mountain guava, while the seaside-grape with its large decorative leaves and hanging bunches of dark blue berries, was and is to-day, a prominent feature on the sea shore.

Then, as now, the scene was made gay by the anatta, with its rosy coloured flower, and purplish pods; the West Indian ebony, with its yellow flowers, which burst into bloom after almost every shower; the pale blue of the lignum-vitae bloom; the golden bronze of the under surface of the leaves of the star apple tree; the hanging purple bunches of the bastard cabbage-bark tree; the yellow and purple portulacas; the yellow "kill-buckra" weed, seen in great profusion in the plains about Christmas time; the pink shame-weed; the red and yellow of the Barbados pride; the yellow of the Jerusalem thorn; the purple pyramid of the mountain pride; and the brilliant golden candelabra-like spike of the coratoe, or may-pole, as it is commonly called from the period of the appearance of its magnificent blossoms; by the various specimens of ipomoea, with their several blooms of white, yellow, red and purple; the rose-coloured Jamaica rose; the white trumpet flower; the bright red Indian shot (the cultivated variety of which is a favourite with Jamaica gardeners); the blue Jamaica forget-me-not; and many another brilliantly flowered tree, creeper and shrub. Then, more than now even, ferns (of which there are no less than 473 species in Jamaica alone, compared with forty-seven species only in the British Islands) were a charm in Jamaica sylvan life.

Some native trees, such as mahogany, cedar and logwood, are found in most of the colonies, Honduras, of course, bearing the palm for mahogany. The mahoe, yacca and satin-wood are typical of Jamaica; the balata and cyp of Trinidad, and so on. Others yield dyes and are useful in cookery and medicine. Amongst the useful plants was that palm-like plant which is not a true palm—

one of forty species of Carludovica, natives of Central and South America and the West Indies—from the "straw" taken from young unopened leaves of which jipi-japa hats are made; and the graceful gru-gru palm then as now fringed the plain; while in Trinidad the palmistes (called in Jamaica the cabbage-palm) were prominent features in the savannas. Amongst the chief food plants and fruit-bearing trees were the cassava, the Indian's chief staple of food; the mammee, with fruit of a russet-brown hue, larger than an orange; arrowroot, for which St. Vincent is famous; the guava, the fruit of which made into jelly is world famous; the naseberry, with a fruit not unlike a medlar both in appearance and taste; and the pawpaw, with its straight stem, and fruits like pumpkins hanging just beneath the crown of leaves. The genip, a native of Trinidad, has since found its way to other islands.

It is thought that the sugar cane, to which the islands owe much of their prosperity, was introduced by the Spaniards. Of trees and plants now common in the islands, which we know were not existing when Columbus landed, may be mentioned the pindar nut and cherimoya, and the glorious allamanda, which came from South America; the bougainvillea from Brazil, the jack-fruit, ginger (for which Jamaica is world famous) and woman's tongue, from the East Indies; the ever-useful and beautiful bamboo, which flourishes exceedingly in Trinidad, came to Jamaica from the neighbouring island of Hispaniola; the orange, lime, lemon, and citron were brought by the Spaniards from their own home; coffee, kola, and akee from tropical Africa; the flamboyant tree (*Poinciana regina*) from Madagascar; various kinds of yams from Africa and the East Indies; the cocoa from Polynesia; the shaddock and hibiscus from China; the cinnamon and mango, now one of the common trees of the island, which came to Jamaica in 1782 from India; guinea-grass from West Africa; the nutmeg, rice and breadfruit, which was brought into the island in 1793 by "Breadfruit" Bligh, who possibly also brought the banana, although it was in the Leeward Islands at the time of the English occupation of Jamaica; and the plantain was in the island when Blome wrote in 1672. Logwood has spread from Honduras throughout the West Indies. It is not certain whether the coco-nut palm was in Jamaica or not.

That, in the exchange of trees and fruits between the old world and the new, the gain was not all on the side of the old was evident to Acosta. In his "Historie Natural y Moral de las Indias," a work full of information about the state of the new world at the close of the sixteenth century, he says: "The *Indians* have received more profit and have bin better recompensed in plants that have bin broght from *Spaine,* than in other merchandize, for that those few that are carried from the *Indies* into *Spaine,* grows little there, and multiply not; and contrariwise the great number that

have beene carried from *Spaine* to the *Indies* prosper well and multiplie greatly;" and it is interesting to note that, of the principal crops of Jamaica of to-day, that of the pimento is the only one from an indigenous plant. The indigenous flora of the Bahamas has contributed no fruits that have proved worthy of cultivation; and the cultivated fruits are, when compared with those of the other West Indian Islands, very small in number. There are about the same number of plants common to the Bahamas and Cuba as there are common to the Bahamas and the Southern States of America; including tropical Florida. There are fifty-six plants peculiar to the Bahamas.

Of animal life in Jamaica, there were amongst the mammals only the cony (with which Columbus victualled the canoe in which he sent Mendez from Jamaica to seek help in Hayti), a mute dog-like animal, which the Indians call *alco,* of which no trace exists to-day, and possibly the rat. It is said that the armadillo (still seen in Trinidad) was once found in all the islands, and the racoon was in Jamaica as late as Sir Hans Sloane's visit in 1687. But the opossum and the peccary, though formerly in the Caribbean Islands, were not known in Jamaica. The cony, which is very shy and difficult to catch, is now only seen in the rocky recesses of the mountains of the east end and occasionally in the interior.*

The natives used as food, besides the cony or labba, the iguana lizard, still seen in Guiana, but almost exterminated by the mongoose in Jamaica, and probably the mountain crab, which is still considered one of the delicacies of Jamaica; but it is thought that they did not eat the flesh of the manatee and only rarely that of the turtle. The Indians of Guiana to-day, however, include in their cuisine several kinds of turtle found in the rivers, as well as the tortoise. There were no horses, cattle, sheep, goats, pigs or poultry in the islands when Columbus discovered them, all of which were introduced by the Spaniards at a later date. Wild deer imported into Barbuda still flourish there.

Of bird-life there were the same specimens as we know to-day only in greater profusion; the blue-mountain duck has, however become extinct in Jamaica.† The parrots were special favourites with the Indians, who kept them in their huts; but Columbus was probably exaggerating when he said that flocks of them hid the sun. Forty-three of the birds of Jamaica are said to be peculiar to the island. Of these the ringtail pigeon, the bald-pate, white-wing, white-belly, pea-dove, quail, mountain-witch and mountain-partridge are very good eating, the ring-tail being considered one of the island's chief luxuries.

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*Live specimens are in the Institute of Jamaica.

†A pair may be seen in the bird collection in the museum of the Institute of Jamaica.

The humming-birds, for which Trinidad is famous, having no less than fourteen species, are everywhere favourites for their beauty and graceful movements, as well as from the fact that they do not hesitate to hover around the flowering creepers that grow on almost every dwelling, and occasionally make their nests and hatch out their young in spots exposed to human gaze. The so-called nightingale is the best of the Jamaica song birds; the solitaire, found only in the high mountains, is known for its melancholy note; the ting-ting and savannah blackbird are useful in picking off ticks from cattle. The whistle of the banana-bird is heard throughout the island; the swift one sees in and about caves; the golden swallows of a rainbow-like hue, are precursors of rain; the frigate-bird, powerful of flight, is seen on the sea-coast, and the coot on almost every lagoon; canaries and parrots (somewhat insignificant in appearance) are chiefly seen in St. Elizabeth, the latter in the higher parts. The canaries are now making their way eastward and are occasionally seen near Kingston. The chicken-hawk is feared by all poultry-keepers, the potoo owl is frequently seen, as are the small ground-doves with their plaintive cry "come home," and the tody (or Jamaica robin red-breast); whilst the bird possibly most in evidence, especially near dwellings, is the johncrow, useful as a scavenger but also dangerous as a disease carrier, clumsy on the ground, but majestic in flight. The Jamaica variety has a red head, the Trinidad bird (there called the corbeau) is all black.

One of the most interesting features in the natural history of Jamaica and some of the other islands has been the introduction of the mongoose, which was imported in 1872 to keep down the rats which were very harmful in the cane-fields. The mongoose did his work well, but unfortunately he did not stop there. He then turned his attention to the snakes, lizards, small birds, turtle eggs, domestic poultry and their eggs, and ground provisions; and became almost as great a scourge as the rabbits in Australia or the historic rats of Hamelin. On a few estates they were kept down by a small reward of so much a head. On one, 1,400 mongoose were thus killed in eight months. By the destruction of small birds, the mongoose is said to be the cause of the immense increase of ticks, a great pest in some parts of the islands, but one that can be, and now is on many pens, mitigated by constant attention to the cleaning of stock; legislature having recently rendered the use of dipping tanks obligatory. Although the mongoose is not now such a nuisance as he was a few years since, the history of his introduction into Jamaica is a warning to any who would lightly upset the balance of nature in any country.

The popular idea that life in the West Indies is rendered dangerous by the presence of snakes and other noxious reptiles is hardly borne out by facts. Snakes, scorpions, centipedes, spiders

and other harmful animals do exist; but they are by no means so prevalent as is commonly supposed. Dwellers in towns rarely see snakes, and Sir Everard im Thurn states that, though he carefully observed, he saw only eleven in two months' travel in the interior of Guiana. In our favoured island there are no venomous snakes at all. On his first voyage to Jamaica, the writer was regaled with gruesome tales of the dangers from scorpions and centipedes. During thirty-one years' residence he has never seen a centipede alive, and has suffered no injury from the comparatively few scorpions that he has encountered. In the days before European occupation, as now, sunset was the signal for innumerable insects, crickets, frogs, toads and beetles to lift up their voices, some very large in proportion to their bodies, and give the lie to the not infrequently used phrase "stillness of a tropical night", and for the fireflies and glow-worms to shed their light, making here and there the landscape to appear a veritable fairy land. In Jamaica the whistling frog of Barbados, which is very audible after sundown in parts of lower St. Andrew, is of comparatively recent importation.

Then, as now, the sea around the coast held a large supply of food-fishes, excellent in their way, but lacking for the most part the flavour of fishes in temperate waters. Chief among the food-fish of the sea around Jamaica are calipever, snapper, grunt, snook, kingfish, junefish and cutlas-fish, and most of these are found in the other islands, while Trinidad boasts of its cascadura, which once eaten is said by a Creole legend to compel the eater to dwell in the island or to return to it to die; and Barbados is famous for its flying-fish. An experiment made in Jamaica in 1898 tended to prove that neither the sea-bottom nor the supply of fish is conducive to successful fishery operations on a large scale. Large fossil sponges and other marine growths tore the nets to pieces. But expert fishermen are of opinion that the fish with which the Caribbean teems might yet be caught on a large commercial scale. The mountain mullet, the finest of the river fishes, rivals many English fish in delicacy. The rivers also produce a kind of crayfish, and from their estuaries and lagoons come the oysters which commonly adhere to the branches of the mangrove, and so may be said to grow on trees.

During the century and a half of Spanish domination of the Greater Antilles, almost the whole of the natives were destroyed, their place being taken by negroes from Africa. The cultivation of cotton carried on by the natives was developed and the sugar-cane was introduced. Fruits, as we have seen, were imported, and a large number of horses, hogs, and cattle were brought from Europe and increased abundantly. While Cuba, Hispaniola and Porto Rico were colonized by them in the true sense, Jamaica was used as a source of supplies for the Spanish plate-fleets, the Spaniards

being disappointed at the lack of gold; whilst they used Nombre de Dios, and later Porto Bello, as a warehouse for the treasures gathered on the main. Indeed, within thirty years of Columbus's first voyage, Mexico supplanted Hispaniola as the centre of Spanish America. In Jamaica they had settled, after they had abandoned Sevilla Nueva on the northside, at the Villa de la Vega (called by the English first St. Jago de la Vega and then Spanish Town), established in 1534, a few miles from the coast on which most of their settlements were placed. Roads ran along the coast and also across from port to port, but the interior roads at all events were not good, for a few years later Doyley, the first English governor, found it better to send his troops by a sea voyage of eleven days rather than trust to them.

Discovered by Columbus for Spain, given by the Pope to that country, the islands of the Caribbean and the peripheral mainland were at first exploited by the Spaniards for gold, then became the scenes of buccaneering, and lastly of settlement for agricultural pursuits. But from the first England disputed the rights of Spain, and it was Ralegh's dream to make a Greater England. Amongst the buccaneers, Teach (better known as Blackbeard), whose name was a source of terror from Cape Hatteras to the Orinoco, was especially famous in the Bahamas, the early home of pirates, where Rogers, a converted pirate, suppressed his former comrades in 1718, as Morgan had done in Jamaica. Blaufelt gave his name, it is said, to Blewfields, in Nicaragua, while in Belize some think they see the name of Wallis Frenchified. In the words of a contemporary writer, piracy ruined trade ten times worse than a war. In the papal division of the world between Spain and Portugal the former was precluded from holding land in Africa, where the other European countries colonizing in the West Indies—England, France and Holland—had territory, and she had perforce to depend for her supply of African slaves for her western possessions on the Assiento contract. . Existence was in those days by no means easy; it was reported of more than one early settlement that the living could scarce bury the dead. A modern song-writer makes the Adventurers sing:—

> "We are the men who widen the world;
> We sail 'neath a flag that's never furl'd,
> Storm and shine are the same to we
> Who seek our fortunes over the sea!"

Not content with ruining the trade of the West Indies, they sailed east and carried on their fell work in the East Indies also.

England, France and Holland took possession of those West Indian islands which had not been settled by Spain. In the early buccaneering, "cow-killing" days, these three nations were usually banded together in common hostility to the dominant country in

the Caribbean, Spain. Later on, the Dutch dropped out, their object being not so much the occupation of new lands as to procure feeders for their markets of Amsterdam and Middelburg, and then England and France became rivals, and in their quarrels Spain usually sided with France. Only once (in 1808-14) did she support England. The British West Indies were partly colonized by those already on the spot. The spirit of adventure was strong. Many left Barbados for New England, Virginia, Surinam and Jamaica, but Willoughby told Arlington that this was taking from His Majesty's righthand pocket to put into his left.

The Dutch and Danes owned some of the smaller islands; the Dutch own theirs still. The Knights of Malta for fourteen years owned five of the smaller leeward islands, of which St. Kitts was the most important and Tortuga, later of buccaneering fame, the most notorious: the United States purchased the Danish islands, as late as 1917. But the principal struggle lay between the three powers first mentioned. Drake, who made his fellow-countrymen familiar with the West Indies, as later explorers have been the first to tell of untrodden lands at the North and South Poles, in Africa, and in Asia, conquered San Domingo city. Ralegh sacked St. Joseph, the Spanish capital of Trinidad, after caulking his ships at the pitch lake; and first Shirley, and then Jackson raided Jamaica, but Newport's attempt in 1603 was beaten off. De Ruijter made his presence felt in the West Indies, although his attack on Barbados in 1665 failed. Of the early heroes, Drake and Hawkins lie buried in the blue Caribbean, the one off Porto Bello, the other off Porto Rico; Prince Maurice, too, lies off Anegada, one of the Virgin Islands; Morgan and Benbow rest in Jamaica, and Somers in Bermuda. Major Sedgwick thought that "this kind of marooning, cruising, plundering and burning towns," though of long practice, was not honourable for a princely navy.

In colonizing, the Spaniards, seeking only for treasure and not finding it in the islands in large quantities, preferred the more metalliferous southern continent. The Dutch took kindly to the flat lands of Guiana, which reminded them of their own country, and made of it a second land of dykes and windmills; and issued prospectuses, which were translated into German, giving glowing accounts of the money to be made from sugar-growing. They were traders in the islands, especially in salt, and St. Eustatius to the north and Curacoa to the south of the Caribbean, became the common emporiums of the West Indies. The French, with their native thrift and enterprise, directed their energies to extracting from the soil its best crops, and set an example in that direction that it would have been well if other colonists had followed. In the transit trade between the North American and West Indian colonies, the Bermudas, ever the home of skilful shipbuilders, played an important part, and when trade with the West Indies was forbidden to the United States, these islands became an *entre-*

pot between the two countries. The Bahamas, under the lords proprietors, during the late seventeenth and early eighteenth century, were a very nest of buccaneers and wreckers. It has been said of one of their governors, Trott, that he was a very great rogue, but that had he been an honest man he would have found himself very solitary. During Beeston's administration, Jamaica was the only British colony in America which was not charged with openly encouraging piracy and illicit trade. Colonial Governors often suffered from a lack of salary and from a lack of instructions from home and honest men found themselves out of pocket.

On the seas, the question of land ownership was accompanied by the struggle for trade and consequent naval supremacy. Marvell, who dreamt not of aviation, wrote:

> "Needs must we all their tributaries be,
> Whose navies hold the sluices of the sea!
> The ocean is the fountain of command,
> But that once took, we captive are on land;
> And those that have the waters for their share,
>
> Can quickly leave us neither earth nor air."

And Stapleton, Governor of the Leeward Islands pointed out that Empire in the West Indies turned on the control of the sea.

Spain at first claimed all trade for herself. By the treaty of Munster (1648) she for the first time conceded to another nation the right to trade with the West Indies. England, to advance her naval power by fostering the carrying trade as a nursery for seamen, enforced the navigation laws. This caused the capture of many a foreign ship, reprisals on the part of France and Spain, and the granting of letters of marque on all sides. These national feuds were accompanied by private piratical undertakings, and the buccaneers fattened. The British colonies were instructed to suppress piracy, but were denied the necessary naval assistance.

Jamaica's bill for the suppression of piracy was taken as a model for other colonies, and the British House of Commons passed an act on its lines.

In the main British politics had little influence on the colonies, and of the Revolution there is little trace in Colonial records. At first a militia was formed from the white servants, but many were lost by war, sickness and the attraction of buccaneering, and recruits were difficult to get. Many of the servants were the result of "spiriting" in England which in 1670 had reached such a pitch that the law made the penalty death. Complaints in the colonies were made against the sending of convicts, or "Newgators".

When in 1660 the Plantation Committee of the Board of Trade was formed several merchants with large West Indian interests had seats on it. In about 1679 companies of soldiers, forming the beginning of an imperial garrison, were first sent to the Planta-

tions. Barbados was the first colony, in 1682, to put its militia into red coats. In the first half of the eighteenth century, smuggling, the natural outcome of the Navigation Laws which the colonies resented, was prevalent in the British colonies, and subject to violent repression on the part of Spain. The colonies were only allowed to trade in such commodities as were not produced in the United Kingdom, and the taxing of sugar and tobacco raised a howl from the colonies. The well-known case of Robert Jenkins, master of the brig "Rebecca", who lost his ear on his way from Jamaica to London, was not unique. Rear-Admiral Stewart, who then commanded on the Jamaica station, saw that the fault lay largely with the Jamaica merchants, but the English merchants made their views felt in Parliament, and Vernon's destruction of Porto Bello was the result. The President of the Council of the Indies in Spain said there were faults on both sides. The British contrabandists should be punished and some of the Spanish Governors hanged. The Declaration of the Independence of America complicated matters still further. The inhabitants of the United States would not understand why they should not, as a foreign state, enjoy the same privileges of trade with the British West Indies, which had been their right before they revolted: and in this feeling they had the sympathy of many in the islands, who needed cheap supplies of lumber and provisions for their estates and homes, and a handy market for their sugar.

It was said of New England in 1675 "When they trade with Jamaica, as they do sometimes, they bring home pieces of eight, plate and pigs of silver." In the West Indies generally pieces of eight varied in value, and when it was desired to obtain currency in place of barter (tobacco, sugar, cotton and the like) a difficulty arose by reason of the variety of coinage forthcoming, and a uniform monetary system is as yet unknown in the British West Indies.

At this time loyalists from the Southern States went to the Bahamas after the Declaration of Independence, the white population being doubled and the negro population trebled. Thither they carried cotton planting with them. Some of them found their way to Jamaica, and other islands.

So far as Great Britain is concerned, if Scotsmen have been prominent in colonization, it was men from the west of England who laid the foundations—Somers, Drake, Ralegh, Grenville. The English preferred at first, in the main, adventure to cultivation, and only took to planting and trading when buccaneering ceased to be profitable. They then, after their fashion, muddled through to victory and successful colonization—fighting, trading and planting by turns—and grumbling and growling all the time at their treatment by the mother country.

As the islands became more settled under the English colonists, vessels which had at first been equipped for home defence, began to assume the position of private men-of-war, or privateers; and in

the case of Jamaica they brought into Port Royal, sometimes with the warrant of the governor, sometimes without, fabulous spoil from the Spaniards. When it suited the home programme the local governor was praised for zeal in the Imperial service. When the complaints of the Spanish court became too insistent, he was made a scapegoat and recalled. But the habit of plundering the hated Spaniard had got into the blood of men who were ill-fitted to lead a sedentary life; and the steps from authorised privateersman, first to unauthorised buccaneer, and then to pirate and murderer, were easy. And no close scrutiny was exercised upon the origin of the wealth poured into Port Royal, which its owners squandered in drinking and gaming as quickly as they had gained it. In five years of the commerce-destroying actions of the early days of the eighteenth century (1702-07), a great part of which was aimed at the West Indian trade, France lost 1,346 merchant ships and England, 1,146, of which 300 were retaken.

Of the British possessions, the earliest to be settled was St. Kitts in 1623, followed by Barbados, Nevis, Antigua and Montserrat. Then came the capture of Jamaica in 1655—the first colony taken by force from Spain, and the first taken by force by Great Britain—and the settlement of the Bahamas eleven years later. A lack of co-operation between the various colonies was sadly evident and was a hindrance to colonial development. But when Barbados refused much needed aid to the Leewards, Lynch shamed them by sending assistance from Jamaica.

It is to be feared that Bellomont's charge that the people of New England "preferred a little sordid gain before the interest of England" could not be confined to that colony. A Governor of Maryland gave the House of Assembly a sermon by the Archbishop of Canterbury on doing good for posterity, and adjourned them for twenty-four hours that they might digest it.

It was not till another century had passed that Dominica, the Virgin Islands and St. Vincent were fully acquired by British arms. Trinidad and British Honduras became British just before the close of the eighteenth century, and St. Lucia and Tobago just afterwards. Thus 180 years were occupied in the shaping of the British possessions in the West Indies. During that time several of the islands changed hands with alarming frequency. At times England had footing in countries owned by France and Spain, such as Havanna and part of San Domingo, while the fortification and holding of H.M.S. *Diamond Rock,* forms a picturesque episode in the protracted warfare that was waged in the Caribbean in the eighteenth century.

Early in the year 1782, England's ownership in the West Indian islands had reached its nadir—all that was in her hands being Jamaica, Barbados and Antigua; when Rodney in April, by his glorious victory over de Grasse, in which he displayed by his methods of concentration a great advance over previous naval

tactics, completely altered the aspect of affairs, and re-established Britain's dominion in the West Indies, which was finally secured by Nelson at Trafalgar. During the fearful loss of life and retaliatory measures adopted by the combatants, it is pleasing to note that the West India merchants in London gave an address and piece of plate to the Marquis de Bouille for humanity when in charge of former British islands. By the treaty of Paris, England restored to France and her allies all the colonies she had taken in the West Indies except Tobago and St. Lucia; and thus the extent of England's territory in the West Indies was settled as it is to-day, with the exception of the relinquishing of her suzerainty over the Mosquito territory in later times. And in subsequent years the only change that occurred was the distribution and redistribution of various islands under different governorships.

In these conquests and reconquests, seamen have ever played a prominent part. From the *Iesus,* which Hawkins with unconscious irony used as a slaver, to the *Calcutta,* flagship of the admiral of the North American and West Indies Squadron, many of the finest vessels in the British navy have sailed or steamed in the waters of the Caribbean, and the flags of not a few of England's most celebrated seamen have waved over it—Drake, Ralegh, Myngs, Benbow, Pocock, Vernon, Hosier, Ogle, Keppel, Rodney, the Parkers, Nelson, Hood, the Rowleys, Duckworth, Cochrane, Popham, McClintock, of arctic fame, and Cradock who lost his life in the early days of the great war.

In building their chief towns the Spaniards frequently chose an inland site—*e.g.* the Villa de la Vega (the present Spanish Town) in Jamaica, and St. Joseph in Trinidad. The English, on the other hand, without exception, have chosen sites on the seaboard, their main object having been trade and commerce; and, although fear of the buccaneers at first made the Dutch cultivate up the river banks in Guiana, the other European colonizers have adopted the same plan. All based their habitations on those of their home lands, making only such alterations as climatic conditions required; and the nationality of the builders of West Indian houses is not far to seek. Every chief town in the West Indies to-day, no matter what its nationality, is on the sea-coast, and yet Jamaica, St. Lucia and Grenada are the only colonies which own ports where ocean-going steamers can lie alongside. In the Lesser Antilles the ports, in order to secure shelter are on the lee side of the islands, and the chief towns are hotter than they would be if they were to windward. Thanks to the Palisadoes, Kingston in Jamaica has a fine harbour, and is yet exposed to the health-giving sea breeze.

The origin of the West Indian colonies is mixed in character. Some, like Barbados, were settled by those who felt that England had no longer room for them: others were acquired rather with a view to annoy an enemy (Cromwell's avowed object in attacking

Hispaniola and in taking Jamaica), and had perforce to be settled when captured. Owing partly to climatic, partly to geographical and partly to economic reasons, these colonies have not been colonized in the same spirit as was North America or Australia. There, families by the thousand have gone and settled and multiplied, adopting the country as their home. In the West Indies, on the other hand, heat, inducing lassitude, lack of sport, and other recreations dear to the heart of Englishmen, and in many cases in the past a too-easily acquired wealth, led the proprietors to first pay frequent visits to the mother country and in rarer cases to the Northern American colonies, and then to live there altogether. In the eighteenth century it was said of both French and English islands alike, that "Every man hurries to grow rich in order to escape forever from a place where men live without distinction, without honour, and without any form of excitement other than that of commercial interest." While living in the colonies, English residents made their presence felt in the legislative chambers. Sprung, many of them, from the best families of England and Scotland, they ill-brooked anything which looked like dictation and were ever ready to insist on their rights and privileges, salving their consciences with prefatory remarks expressing unbounded loyalty and affection to the British Crown; and when resident in England they had considerable influence in the House of Commons, either personally or through their friends. Yet when, colonization achieved, the time came, with emancipation, for the welding together of a people from the heterogeneous collection of races gathered together in the Caribbean—a few native Indians, British (English, Scotch, Irish and Welsh and their Creole descendants), a few Creole French and Spanish, African and Creole Negroes and a large number of mixed race of negro and European blood of varying shades—the absenteeism of many proprietors and consequent lessening of interest in those living on and near their estates, added to the difficulties of a question already complicated. But as the years roll on absentee proprietors become fewer and the five or ten acres men whom Codrington in the seventeenth century called "the true strength of the colonies" increase.

III.—JAMAICA AS A SPANISH COLONY.

Jamaica was the scene of Columbus's longest residence in the West Indies. He lay, with neglected, worm-eaten vessels, on the shores of St. Ann for a twelvemonth in 1503-04. The Spaniards remained in possession of the island of Jamaica, (or, as they at first called it, Santiago) for about a century and a half.

While Pizarro was acquiring an empire for Spain in South America ,and Cortes was conquering the valiant Mexicans, Jamaica, though on the main route to the Spanish main, was in very large measure neglected becaus it afforded no source of wealth, and was more or less a cause of expenditure, both of men and material, which would have been regarded as unnecessary had it not been for its use as a source of food supply, and that the Spaniards felt that they could not afford to let an alien hold possession.

Part of the domain of Diego Colon, son of Columbus, as governor of the West Indies, Jamaica was awarded to Nicuesa and Ojeda jointly as a place whence to draw supplies, and when they left in 1509, Juan de Esquivel was appointed by Colon as governor, the first of twenty Spanish governors whose names have been recorded.

For the purposes of audit it was subservient to the Audiencia of Hispaniola. The Spanish system of having three keys for the Royal Chest and trusting none of the three officers (Treasurer, Controller and Factor) was a poor foundation on which to build up an Empire.

At Columbus's unfortunate suggestion, criminals had been sent as colonists to the New World on his third voyage, and this class of people, with needy adventures whose sole aim was the acquisition of riches, proved no good material out of which to form a colony. Columbus, too, unhappily, proposed that cannibals and prisoners of war should be sent to Spain for the good of their souls in exchange for cattle, and this expatriation, together with the cruelties practised on them by the Spaniards in their greed for gold, soon led to the extermination of the natives, in spite of the instructions frequently sent by Isabella that they should be treated kindly. To-day Arawaks only appear in Jamaica as supporters of the arms of the colony.

Then the fateful step was taken of importing slaves direct from Africa, whence they had already been introduced into Spain and Portugal, and an evil legacy was bequeathed to the West Indies. The direct effects of this bequest were not to be removed for upwards of three centuries, and the indirect effects are still all too apparent. There is, of course, always the other side of the question, that it is difficult to see how the West Indies could have

been developed without the introduction of enslaved Africans. Apologists for slavery suggest now, as they did in the stormy days of Abolition, that negroes fared no worse at the hands of their West Indian masters than they would have done at the hands of their savage neighbours in Africa, and even to-day there are those who advocate for some of the still undeveloped parts of Africa a system which is slavery under another name. But that hardly seems to settle the matter.

Of the century and a half during which the island was under the grip of Spain, the history remained until quite recently, locked up in the archives of that country. Recent research at Seville. undertaken by Miss I. A. Wright on behalf of the Institute of Jamaica, has resulted in the transcription of many documents which throw much light on the Spanish occupation of Jamaica.* Almost the whole of the natives were destroyed, their places being taken by negroes from Africa. The cultivation of cotton carried on by the natives was developed, and the sugar cane was introduced. Fruits, as we have seen, were imported, together with a large number of horses, hogs and cattle, and increased abundantly: the island being used as a source of supplies for the Spanish plate-fleets. But no real attempt was made at colonization, the Spaniards being disappointed at the lack of gold. As early as 1512, it was in contemplation to withdraw the colonists and send them to Cuba, but it soon became apparent that the island would be useful as a source of food-supply; and as early as 1514 Gray, the governor, was ordered to send food to Castilla del Oro. The King was part owner in some of the ranches.

In 1521 there were many deaths amongst the Indians and slaves in the island owing to a general pestilence. As late as 1525 a supervisor of the smelting of gold was appointed. In order to encourage immigration, settlers and their families were to be exempt from customs or other duties. In that year also Ferdinand and Isabella adopted—by granting permission to Bastidas to take settlers from Espanola and Jamaica to settle Trinidad—that system of robbing Peter to pay Paul, which later was adopted by the English in their colonization in the Caribbean.

In 1533 Isabella evidenced peculiar interest in the church which Peter Martir had caused to be founded at Seville. In the same year an expedition went to the main land "to carry Christianity to the idolatrous Indians—by force of arms if necessary." It is interesting to be able to settle the doubts which have hitherto existed as to the reason of the abandonment of Seville as the chief town of the island. In July, 1534, Ferdinand wrote to Avila, the auditor who examined the accounts of the island, that he had been informed that since the settlement much illness

*These transcripts are in the West India Reference Library of the Institute of Jamaica. Some of them have been published in "Jamaica under the Spaniards. By Frank Cundall and Joseph L. Pietersz. 1919."

was caused because of the swamps and creeks that infected the air before it reached the town with a bad odour, and the high hills at the back caused the wind to return to the town impure, and also that the south side was healthier and also much more convenient for shipping to and from Santa Marta, Cartagena, Peru and Honduras. The King accordingly ordered that at Garay's request a town should be founded on the south side close to a sugar-mill which had been commenced at a spot which he had found to be healthy. And thus 1534, and not 1520 as usually given, was the date of the foundation of the Villa de la Vega, the present Spanish Town. Thirty Portuguese citizens, married farmers and labourers, were to be encouraged to settle there.

In 1535 Isabella decreed that the native Arawaks were to be "assigned" to married colonists rather than to unmarried ones, "so that they may keep them and teach and instruct them in matters of our holy faith."

In 1536 the King, on the advice of the arbitrators in the lawsuit, granted to Luis Colon, Jamaica and twenty-five square leagues of land in the province of Veragua, "with civil and criminal jurisdiction, high and low, *mero mixto imperio*," the King retaining supreme jurisdiction. Three years later it was decreed that the gold and silver extracted in Jamaica should be marked with the royal arms and the word Jamaica. In 1575 the King issued an order that the colonists of Jamaica might export to the mainland free of customs duty "things of their tillage and raising" for six years, and this concession was later renewed from time to time till 1602.

In 1581 Villalobos was the first abbot of Jamaica to take up residence; "previous abbots, most of whom were seculars, had had more concern in making incomes than in attending to their duties"—at least so he told the King. The Villa de la Vega then had one hundred inhabitants (*vecinos*), a church "built low in the old style of wood and tiles"; a monastery and two hermitages, St. Lucy and St. Barbara. There was also a monastery of St. Dominic. When Villalobos died in 1606 he was buried near the high altar of the principal church of the Villa de la Vega.

Two years later the King, on appeal from the country on account of its poverty, granted to it half of the royal dues. Melgarejo, who was governor from 1597 to 1607, seems during that period to have been nearly as much concerned over the question of his salary as over the welfare of the colony, which then appeared to be in low water: and he was not backward in the matter of singing his own praises; winding up by saying that he had spent all his money in the defence of the island, and begging that he might be employed elsewhere where "his services may shine more and he may be able to pay his debts." But he was appre-

ciated by the colonists who supported his application and this led, one is glad to learn, to a rise in his salary and to an extension of his term of office.

Living was costly: Spanish goods had to be purchased at Cartagena, Habana or Santo Domingo city and there was nothing to eat but cassava and beef. In spite of that more than four hundred Spaniards—inhabitants, soldiers, women and children—came from Porto Rico, "naked, poor, terrified," and Melgarejo lodged more than fifty in his own house. He advocated the sending of a fleet of large sea-going ships—for galleys were of no use owing to the high winds—for the suppression of illicit-trading. Soon after his arrival much damage was done to houses and churches by a hurricane. It is interesting to note that the "safest and shortest" method of communication with Spain was then by way of Cartagena.

Melgarejo reported on the illicit trading by Flemings, French and English: "The French act with both hands: they rob and they trade." He lived much in fear of the vengeance vowed by a French corsair, Olivos, whose brother he had killed in repelling an attack. Added to his troubles he complained that of the 12,000 ducats due to him for the last eight years' service, he had received less than 3,000, and could get no redress from the officials at Panama whose duty it was to pay him.

In 1593 the *Pilgrim* and two other ships detached from the fleet of the Earl of Cumberland, captured off America two barks laden with hides.

In spite of Melgarejo's efforts, his successor Miranda, found on his arrival in 1607 that Jamaica was much infested by pirates. Whatever else they did or did not do the Abbots of Jamaica have earned our gratitude for the descriptive accounts which they sent home. Following the example of Villalobos the Abbot in 1611 sent a full account. The people were lazy and indolent: there was only one settled town, the Villa de la Vega: the collegiate church of the abbacy was *nullius Diocesis*: the clergy, "born in the island," were poor like the people: there were two monasteries, of St. Dominic and St. Francis: there were 1510 persons in the island—523 Spaniards (including men and women), 173 children 107 free negroes, 74 Indians (natives of the island), 558 slaves, 75 foreigners. All the Spaniards were from three parentages and were very mixed by marriage. "Nearly the whole year is taken up in killing cows and bulls only to get the hides and the fat, leaving the meat wasted." He praises the woods of the island and suggests ship-building. Lack of prosperity was due to laziness on the part of the inhabitants and to lack of courage. He hid his name under the signature "Abb. Jamaycensis."

As early as 1635 the Council of the Indies displayed an interest in the Pimento industry. In 1638, ships constructed in

Habana, Campeche, San Domingo, Porto Rico and Jamaica, were accorded all the privileges of those of Spain.

In June, July and August of 1648, there were many deaths and much distress by reason of a prolonged drought. A monk improved the occasion by denouncing the sin of "card-playing in high places," to which the governor, Caballero, who was no lover of the church, retorted by calling him "a liar and a dissolute monk"; he having previously called the abbot, Medina Moreno, "a garlic-eating clown." Sedeno de Abornoz, who had recently come to audit the accounts, found Caballero "a great disturbance to the peace of the island." The abbot excommunicated Caballero, and the colony was divided into two factions, Caballeristas and Sedenistas. Shortly afterwards, in a personal scuffle between Sedeno and Caballero at the Abbot's house, Caballero lost his life. The Governor caused an enquiry to be held with the result that it was found that Caballero fell on his own sword. But the deceased governor happened to be a "maestro titular" of the Holy Inquisition, and the long arm of that all-powerful body, instigated by his father-in-law, reached out from Cartagena, seized Sedeno, put him in chains, hurried him on ship-board and took him, together with the abbot and his vicar-general, to Cartagena, from the common gaol of which city he, in 1650, sent home a long and tragic report of the occurrence. Two years later he was resident in Venezuela, and in 1655 he sent home a long and interesting account of Jamaica, from which we learn that the settlement of Honduras and Guatemala drained Jamaica of some of its inhabitants.

Betancur, a lawyer of St. Domingo city, was sent by the Audiencia there to enquire into the cause of the death of Caballero, but on arrival he found the government placed by the Holy Office in the hands of the Sergent-Mayor, Francisco de Proenza, who declined to acknowledge Betancur's authority.

When in May, 1655, Penn and Venables, after their unsuccessful attempt on Hispaniola, attacked Jamaica, Juan Ramirez was governor, "crippled in hands and feet in a bed." Ramirez was sent by the English to Campeche; but died on the voyage. Proenza, the head of the army, was incapacitated by failing sight, and the command fell on Cristobal Arnaldo de Ysassi (hitherto always alluded to by English writers as Sasi), a native of Jamaica, a member of an honourable Basque family, and brother to the Bishop of Puerto Rico, who for some years made a noble effort—aided by forces sent from Puerto Rico, Cuba, Cartagena, Santo Domingo and New Spain (Mexico) under the general supervision of Alburquerque, the governor-general of New Spain, who did all in his power by exhortation and support to aid Ysassi—to maintain Jamaica, of which he was appointed governor in 1656, for the Spanish Crown.

From the despatches he sent home, Ysassi was evidently well informed as to all the fortifications and forces of the British made

by Duarte Dali (Edward Doyley). Roughly speaking, during the period of struggle, the Spaniards controlled affairs in the west end of the island, the English in the east. Many of the fugitive negroes joined his forces, he promising freedom to those who did well; but Bayona, the governor of Cuba, was worse than lukewarm in his supply of men and provisions, and Ysassi's efforts were in vain. He attributed his defeat at Ocho Rios to treachery, and he asked Alburquerque to hold de los Reyes the traitor, prisoner. At last he had to give in, and writing to the King in August, 1660 from Cuba, Ysassi had to confess that the job was beyond him. He had played the part of a brave man.

During the period of the Spanish occupation the island was at least five times visited by Englishmen. In 1568 Sir John Hawkins in the *Iesus* skirted its south coast. In 1595 Sir Amyas Preston and George Summers landed. In 1596 Sir Anthony Shirley, the celebrated traveller, marched inland six miles, and met with "such poor resistance, that with little or no danger he plundered the island, burned St. Jago, and was, while he stayed, absolute master of the whole." He and his companions found it "a marueilous fertile isle," and they said "we have not found in the Indies a more pleasant and holsome place." In 1603 the English under Christopher Newport attacked the island, but were beaten off by Melgarejo. In 1643 an expedition, fitted out in Barbados, chiefly from St. Kitts, under Colonel Jackson, landed at Passage Fort, and fought its way to the capital and "plundered it to their no small enrichment."

It is estimated that when Jamaica fell into the hands of the English, the population of the capital was half Spanish and Portuguese or their descendants, and half slaves; but it is a curious fact that a negro is mentioned as holding the position of priest of the Roman Catholic Church.

The more important islands of Cuba and Hispaniola, to say nothing of the rich mines of South America, offered greater attractions to the Spaniards than did Jamaica, where, then, as now, the field had to be ploughed before the harvest could be reaped. They utilized for their *hatos* or pastures, the low-lying lands on the sea coast, which had formerly been used by the native Arawaks for the cultivation of Indian corn and cassava.

Of these *hatos* the principal were, going from east to west, Morante (the name of which still lives in Morant Bay), Ayala (Yallahs), Lezama (where Mona now is,) Liguanea (lower St. Andrew), Guanaboa (the name of which still exists), Guatibacoa (about Old Harbour), Yama (in Vere), Pereda (Pedro Plains), El Eado (behind Bluefields), and Cabonico (near Savanna-la-Mar).

They had settlements at the Villa de Vega (as they called the present Spanish Town); at Caguaya (Passage Fort); at Esquivel (Old Harbour, named after the first governor about 1501); although one writer talks of the port of Maymon obviously refer-

ring to Old Harbour; Guiacanes (apparently Galleon Harbour), at Parattee (still bearing the same name); at Oristan (Bluefields, named after a town in Sardinia then subject to the crown of Spain); at Savanna-la-Mar; at Negrillo, at Melilla (probably in the north-west corner of St. James);* at Chireras (Ocho Rios), founded in 1510; Hibanal (somewhere near Buff Bay), at Puerto Anton (Port Antonio), and at Sevilla Neuva (St. Ann's Bay). Guayguate and Elvira were both near the north side but cannot now be identified. They had a look-out on the Cayo de Carena (Port Royal).

Roads ran from Sevilla Nueva, along the coast, to Puerto Anton, and southward—one to the Villa de la Vega, and another to Esquivel. From Esquivel there was a road to Oristan, and thence to Melilla, whence it went west to Punta Negrilla.

The Spaniards had explored the island sufficiently to name† approximately many of the rivers—Agua Alta (deep river, now known as Wag Water), Rio Cobre (copper river), Rio Grande (large river), Rio Minho (after the river that divides Spain from the north of Portugal), Rio Bueno (good river), Rio Magno (great river), Rio Nuevo (new river), Rio de Oro (golden river), Rio Pedro, Rio Hoja (leafy river, now called Rio Hoe) and Rio Sombrio (shady river, now Rio Sambre) in St. Mary, Rio del Seco (possibly the Dry River), and lastly Boca de Agua (or waters meet; now corrupted into the well-known Bog Walk).

Of the names which they gave to the hills we have retained Mount Diablo and the mountains of Santa Cruz. The Blue Mountains were called Sierras de Bastidas.

In adopting Spanish names, the early English settlers fell into two errors. They called the Villa de Vega, St. Jago de la Vega; and they gave to the Point of the Palisadoes the name of Cagua, which was a corruption of Caguaya, which stood where Passage Fort now is.

There are but scanty remains of Spanish masonry in the island; none of great importance. The only known relic of Spanish Jamaica is the church bell from Port Royal, now in the Institute of Jamaica.

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*There is evidence in favour of sites further east and one seventeenth century map even puts it at the east end of the north coast.

†See "Jamaica Place Names." (Institute of Jamaica, Kingston, 1909.)

IV.—JAMAICA AS A BRITISH COLONY.

The space at disposal will only admit of the briefest abstract of the principal events in the history of the island under British rule.

If Spain utilized criminals in the colonization of her possessions in the New World, some of the men whom Cromwell sent out under Penn and Venables, to "obtain an establishment in the West Indies, which is possessed by the Spaniards," in order to put a check on Spanish arrogance, were little better. One of their number characterised them as "Hectors and knights of the blade, with common cheats, thieves, cut purses, and such-like lewd persons;" and, in connection with the cowardice at San Domingo of Adjutant-General Jackson, who had his sword broken over his head as an example to others, he stated that, in his opinion, " if all of like nature had been so dealt with, there would not have been many whole swords left in the army;" and the wife of Venables, who kept a journal, said, "a wicked army it was, and sent out without arms or provisions." But, after their miserably unsuccessful attempt to take San Domingo, Penn and Venables, joint commanders unfaithful alike to Cromwell and to each other, were fortunate enough to find in Jamaica a lot of Spaniards who were ill-prepared for an attack and had perforce to yield, not, however, before they had cheated the invaders into letting them get away with what riches they possessed. For two or three years thereafter a number of them made efforts to regain their power, but, though bravely led by Ysassi, they were not sufficiently supported from Spainish America, and had amongst their numbers traitors to the cause. The negroes belonging to the Spaniards retreated to secluded spots in the interior, and became the forerunners of the maroons, who for years gave such trouble to the authorities by their lawlessness. In 1656 Luke Stokes, the governor of Nevis, came with some 1,600 souls and settled at the east end of the island, and Cromwell with a desire to have Jamaica colonized by a God-fearing people offered through Daniel Gookin, better known as the protector of the Indians, special facilities for those who would go from New England and settle in the new colony. Some few went, but reports of its unhealthiness, and fear of Spanish invasion and of revolted negroes kept many away. The care which Gookin took, however, to send provisions from New England for the new settlers, paved the way for the subsequent trade between the northern colonies and the West Indies.

From that day to this, amidst all the vicissitudes and contests on sea and land in the West Indies between England and France and Spain, when the smaller islands, with the exception of Barba-

NELSON'S QUARTER DECK, PORT ROYAL

HOUSE OF ASSEMBLY, SPANISH TOWN

dos, frequently changed their nationalities, Jamaica has—thanks probably to Rodney—remained in the possession of the British Crown; and the history of the influence of the English on the African race during the period may be perhaps better studied in Jamaica than in any other island.

Gage, the traveller, whose "English-American" did much to draw the attention of England to Spain's possessions in the New World came out in the expedition of 1655 and died in Jamaica.

After a short period of military command, General Doyley was appointed Jamaica's first civil governor in 1661. In that year the principle of the navigation act, passed by Cromwell ten years earlier aiming at the Dutch carrying trade, was re-affirmed by Charles II. and this forbidding of the carrying of goods to British ports in aught but British ships, coupled with the delicate matter of right of search, of which much has been said of late, was an endless source of conflict between British and foreign vessels for many a year to come. The second governor, Lord Windsor, reached the island on the 11th of August, 1662. He had published at Barbados, *en route,* a proclamation for the encouragement of settlers in Jamaica; and brought with him Jamaica's magna charta, a proclamation from the king that all born in Jamaica of English subjects should be citizens of England, and the right to make laws, to be in force for two years only unless approved by the Crown: also a large silver-gilt mace (which has mysteriously disappeared, but was probably very like the earlier of two maces in the Institute of Jamaica, if indeed it be not that refashioned), the arms of the island, and a broad seal. He remained but ten weeks, but during that time he did good organizing work, and laid the foundation of many of the conditions under which the planters of Jamaica, by the aid of their slaves, were to reap fortunes during the next century and a half. Dr. Henry Stubbe, the second keeper of the Bodleian Library, was here as physician to the island at that time.

The capital, which was first at Port Royal, was, in 1664, removed to St. Jago de la Vega, where, in that year, the first general representative assembly of the people met. Modyford, who, like Windsor, had secured the office through the instrumentality of Albemarle, the new governor, brought 1,000 settlers from Barbados with him. He was a friend of privateers. In that year, too, a census of the population was taken, which amounted to 4,205; but by 1698 the number had risen to 47,365 souls, of whom 40,000 were black. In 1667 some six hundred settlers came from Montserrat whence they had been driven by the French. In 1670, Jamaica was formally ceded to England by the treaty of Madrid, and thus the most pressing need of constant defence against Spanish attack was removed, and greater encouragement was given to planting. When Blome wrote in 1672, there were 70 sugar works, 60 indigo-works and 60 cacao-walks in the island. In 1675, twelve

hundred settlers arrived from Surinam, which had been given up to the Dutch in exchange for New York, and landed at Banister's Bay, and started sugar planting in St. Elizabeth; the memory of them still living in the Surinam Quarters.

On his arrival as governor in 1678 the Earl of Carlisle, in obedience to instructions from the home, bringing forty ready-made laws and a perpetual bill of Revenue, attempted to force upon the island the form of legislation prescribed for Ireland by Poynings's law; the virtual difference between the two systems being that in one the island made its own laws in accordance with its own needs and sent them home for approval, and in the other the laws were made in England and sent out for the approval of the island. The proposed change the Assembly resisted with might and main, their late speaker, the Chief Justice of the island, Samuel Long, being sent to England a State prisoner. After many years of struggle success crowned their efforts. In 1728 an agreement was entered into by the ministry of George II. by which, in return for an annual subsidy granted to the king for the support of the civil government, full power of legislation was conceded to the governor with the advice and consent of the legislative council and house of assembly, subject only to the proviso that any acts passed should not be repugnant to the laws of England, and to disallowance within a limited period by the Crown. After this, for nearly a century and a half—until, in fact, the members of the Assembly in 1865 surrendered the privileges for which their forefathers had struggled—the people of Jamaica enjoyed, with certain restrictions, the right of making their own laws.

In 1685 convicts of Monmouth's and Argyle's rebellion came out bound to serve for ten years. Four years later the first Assiento Company for supplying slaves to the Spanish West Indies was established.

The buccaneers, of whom the chief was Henry Morgan, in his regenerate days lieutenant-governor of Jamaica, were

"a jollie crewe
of plesante laddes that knewe no feare,
and—little of honestie too."

Morgan himself lies buried on the Palisadoes.

In 1687, the second Duke of Albemarle arrived as governor, accompanied by Sir Hans Sloane as his private physician. The Duke had allowance for passage for 100 servants and 500 tons of goods. He tried to govern with a high hand, quarrelled with the assembly, and generally did a large amount of harm in a short time, but died in the following year, his body being taken by his half-crazy widow to England for internment. Sloane collected 800 plants most of which were new species. His work on the natural history of Jamaica is well known.

On the 7th of June, 1692, Port Royal—then the finest town

in the West Indies, and one of the richest places in the world, by reason of treasures brought in by the buccaneers, whose headquarters it was and the centre of much debauchery—was almost totally destroyed by an earthquake, which event led to the development of the town of Kingston.

In 1694 the island was invaded by the French under Admiral duCasse with 1,500 troops, but the invaders were driven back by the Jamaica militia: two years later another French squadron under de Pointis threatened but did not attack the island; in 1699 Jamaica was forbidden to trade with the ill-fated settlers at Darien, some of whom came and took up land in the Surinam quarters. The Darien settlement had been largely formed by officers and men thrown out of employment by the peace of Ryswick. England's jealousy of Scotch trade was its ruin. West Indian governors were forbidden to assist the young colony which was not, moreover, viewed favourably in Jamaica. In this year for the first time Scotsmen were decreed to have the same rights as Englishmen.

In 1702 poor Benbow died at Port Royal of wounds received in the engagement with duCasse off Santa Marta; he lies buried in Kingston church.

Early in the eighteenth century service in the army here was by no means popular. "The most hardened criminal could hope for pardon if he enlisted for Jamaica."

In 1711 the western part of the island was visited by severe storm; the parish of Westmoreland alone sustaining damage to the extent of £700,000. In 1718 coffee was introduced into the island, and the foundation was laid of an important industry which was later developed by the immigration of Frenchmen from the then new republic of Hayti. In 1721, more than 60 years after the conquest, a printing press, one of the foundations of civilization, was first set up in the island. Amongst the very few monuments to England's great men in the Guildhall, London, stands one to a son of Jamaica—William Beckford, Lord Mayor of London, who earned the gratitude of the citizens of London by his fearless attitude towards King George III. when he presented His Majesty with a remonstrance against abuses. The son of Colonel Beckford and the father of the author of "Vathek," he was born in Jamaica in 1709, but left the island in 1723, to revisit it only once in 1735 for a year. Beckford inherited great wealth from his father but he bequeathed more (a million of money and £100,000 a year) to his son, who, never visiting the island to which he was indebted for his wealth, squandered in England his magnificent heritage on the mansion of Fonthill and its collections and earned the obloquy of Jamaicans by reason of the mean part he played in connection with the Drax bequest for educational purposes. Beckford is typical of the class of absentee-proprietors who by their lack of interest in the country from which they gathered their wealth, undermined the prosperity which labour on a fruitful soil was toiling to build

up; so that when the storm, resulting from abolition and bounties came, the structure was unable to withstand the shock: not but that other absentee-proprietors have tried to do their duty by their properties, so far as is compatible with absenteeism.

In 1723, 3,000 acres were purchased by the Government for settlers and the parish of Portland was formed.

From 1730 to 1734, there were difficulties with the maroons, the descendants of the negroes belonging to the Spaniards, who had fled to the wilder inland parts of the island; but in 1738 a treaty of peace was entered into with them, and settlements were assigned to them in various parts of the island. About this time Smollett, who took part in Vernon's ill-fated attempt on Cartagena, the novelist, then a surgeon's mate in the navy, lived here and married a Jamaica lady. In 1744 a storm and earthquake did much damage; Port Royal, Kingston and Old Harbour especially suffering. As showing the value of sugar estates in Jamaica about the middle of the eighteenth century, it may be mentioned that Simon Taylor, a very wealthy planter, gave £100,000 (sterling) for Holland in St. Thomas-in-the-East.

In 1751 the first almanac printed in Jamaica was produced: a copy is in the Library of the Institute of Jamaica. In 1753 Judges first went on circuit and five years later the three counties, Surrey, Middlesex and Cornwall, were formed for judicial purposes.

Admiral Sir Charles Knowles, during his governorship from 1752 to 1756, had many quarrels with a section of the assembly owing to his premature endeavour to change the seat of the government from Spanish Town to Kingston where the Assembly held four sessions. The law which he forced through the house was disallowed by the king.

His successor, Henry Moore, who administered the island from 1756 to 1762 (with a short interval in 1759), did much to pacify the angry feelings raised by Knowles, and was rewarded with a baronetcy. He commenced the building of the present King's House in Spanish Town. Moore was, from 1765 till his death in 1769, governor of New York; while his successor, William Henry Lyttelton (afterwards Baron Lyttelton), who was here from 1762 to 1765, relinquished the governorship of South Carolina to come to Jamaica. In 1754 was founded the Moravian Mission, which has done much good work quietly for nearly two centuries.

In the face of the volumes of abuse that have from time to time been hurled at the slave-owning planters it is but fair to record that in 1765 a bill was twice read in the Assembly limiting the importation of slaves, but was withdrawn on the Governor's saying that he would not give his assent.

"Peter Pindar" was for a time incumbent of a living in Vere. William Beckford, the cousin of the author of "Vathek", spent fifteen years (1773 to 1788) on his various estates. His "Descrip-

tive Account" (1790) was dated from the Fleet prison, a strange residence for one who could claim kinship with the owner of Fonthill. His imprisonment was, however, due to shameful treatment by a friend he had assisted. In 1773 was established the Island Botanic Garden, which has, with its successor the Department of Agriculture, been of inestimable value in the development of the agricultural industries of the colony.

During the latter half of the century Jamaica had either as natives or visitors a number of men celebrated in letters and science. Edward Long, the historian of the island (1774), was a great-grand-son of the patriot, Samuel Long, who, coming out as a lieutenant in Doyley's regiment, rose to be speaker of the house of assembly and Chief Justice. Bryan Edwards, the well-known historian of the West Indies, came in his youth to Jamaica, where he resided (with an interval from 1782 to 1787) till 1792, when he settled permanently in England as a West India merchant. His history (1793)—which ran through five editions, and was translated in part into German, Spanish, French and Dutch—was written at Bryan Castle, an estate which he founded in Trelawny.

Dr. William Wright, after serving as a naval surgeon under Rodney, lived for sixteen years—between 1764 and 1785—in Jamaica, and wrote on Jamaica medical and botanical subjects. John Hunter, who is not to be confounded with his more celebrated contemporaneous namesake, was from 1781 to 1783 superintendent of the military hospitals. His "Observations on the Diseases of the Army in Jamaica" (1788) forms an important contribution to the island's medical literature.

Olof Swartz, the celebrated Swedish botanist, was in Jamaica in 1784-86, when he discovered many new species of plants.

In 1760 there was a formidable rebellion amongst the slaves in St. Mary, and about 600 were transported to the Bay of Honduras. The expedition which was sent in 1778 by Governor Dalling of Jamaica against San Juan de Nicaragua is memorable from the fact that Nelson, who was then in official residence at Port Royal, took part in it. The expedition suffered severely from malarial fever, and Nelson only just escaped with his life. Dr. Thomas Dancer, who lived in Jamaica from 1773 till his death in 1811-12, was chief of the hospital staff on the expedition. He is best known by his "Medical Assistant" (1801).

In 1775 the congress of the revolting colonies in America drew up appeals for sympathy and support, addressed to the people of Ireland and of Jamaica.

In 1782 Rodney achieved his great victory over De Grasse off Dominica, and thus saved Jamaica from possible capture. The Rodney memorial at Spanish Town, by Becon, erected at a cost of £8,200, testifies to Jamaica's gratitude to that great naval commander. The picture of himself and his officers on board the *Formidable,* by Pine, is in the Institute of Jamaica.

Sir Alured Clarke was Lieutenant-Governor during an unfortunate period in the island's history—from 1784 to 1790. He was at first hampered by a succession of severe storms in 1784, 1785, 1786, in the first of which every vessel in Kingston harbour was either sunk or damaged, and the barracks at Up-Park Camp were blown down. During this period Jamaica, in company with other West India islands, protested against the restrictions of trade with America imposed on them by the mother country, and in 1784 an impending famine caused Clarke to allow free importation from the United States for a time. Between 1780 and 1787 no less than 15,000 slaves died as the result of the scarcity of provisions. In 1789 was founded the Wesleyan Mission which has done much for the uplifting of the native population. In 1792 the 20th (or Jamaica) Light Dragoons was formed.

In 1793 an event of some considerable economic importance to the island occurred in the arrival of William Bligh with fruit-trees, especially the breadfruit and the Otaheite and Bourbon sugar canes, from the south seas. For this he received a vote of one thousand guineas from the House of Assembly and the gold medal of the Society of Arts of London; while Sir Joseph Banks received the thanks of the Assembly for the interest which he had shown in the botanical life of Jamaica. In 1795-96 there was further trouble with the maroons. Upwards of 500 were deported to Nova Scotia, whence they were sent to Sierra Leone.

We gain a good account of the state of the island early in 1795 from a despatch which Lord Balcarres, the newly arrived Lieutenant Governor, sent home:—

"On my arrival in the island of Jamaica in April, 1795, I found a vast assembly of French emigrants, who had recently fled from the horrors of St. Domingo. They were composed of all ranks, qualities and colours.

Many of the noblesse of France, numbers of ladies of the highest condition and consideration, accustomed to every delicacy and luxury, and who had saved nothing from the general wreck of their fortunes, excepting their menial female slaves, attendant upon their persons, and a few trusty male domestics, who to save the lives of their mistresses had endangered their own—these persons formed one class of those unfortunate people.

A multitude of slaves and of handicraft men of colour, with great numbers of brown women formed another class.

A third consisted of an immense roll of French prisoners of war of the most alarming description. These were confined on board of hulks moored near the shore; among them were bands of incendiaries who had been sent to Jamaica by the French Directory of St. Domingo, through the medium of the prison-ships; the object of these people was to introduce themselves by bribery and artifice into the island for the purposes of destruction, conflagration and revolt; they were furnished with profusion of gold, and had been too successful in finding the means of effecting their escapes from those hulks, and getting into the interior of the island.

An attempt had been made on the morning previous to my arrival, to set fire to the town of Kingston, and the combustible materials were exposed to view. Shortly afterwards the town of Montego Bay was burnt to the ground. Those circumstances, with the burning of Philadelphia, proved the system that prevailed with the Directory of France and her sub-directories at that period.....

Such was the first coup d'oeil which I had of this people at the period of my landing,—the prospective was still more gloomy.

The people of Jamaica had the greatest dread of the consequences which might eventually befall the island, should a want of success of our army serving in St. Domingo create the necessity of the numerous French corps falling back upon the island of Jamaica.

In this situation, and with these sentiments, the legislature of Jamaica would not discriminate, but passed colonial laws, the effect of which was the confounding everything that was noble and deserving with that which was vile and dangerous.

To my understanding the duty imposed upon me seemed difficult, but extremely obvious. National honour and every sentiment of humanity dictated to me the propriety of protecting with firmness and vigour the first class, and keeping a most vigilant eye on the conduct of the others. . . . . .

I had hardly fixed myself in the seat of government, when the apprehensions which had alarmed me on my arrival, respecting the unfortunate admission of some of these French emigrants into the interior of the island, proved but too well founded, by the breaking out of the Maroon Rebellion an event which nearly lost to His Majesty this most valuable possession of Jamaica."

In spite of all these troubles, in 1803 was sent to England the largest sugar crop ever shipped from Jamaica.

In 1805 there was great fear of French invasion, and martial law was declared, but in the following year fear was allayed by Admiral Duckworth who brought in the prizes captured off San Domingo, in one of the completest victories on record. The journal kept by Mrs. (afterwards Lady) Nugent, the wife of the Governor from 1801 to 1806, contains an excellent account of the life of the period, and gives abundant evidence of the strenuous life which General Nugent and she lived, with its endless round of receptions, banquets, balls, reviews and interviews. In 1803 the town of Kingston was incorporated.

When Sir Eyre Coote came out in 1806 as Lieutenant-Governor, he brought the news that the Imperial Parliament had passed a law withdrawing the restriction on trade between Jamaica and the other West India Islands, and the United States, and also that the African Slave Trade was abolished, which rendered the Jamaica planters dependent for their future supply of labour on the natural increase of the creole negroes, and foreshadowed the total abolition of slavery. From then till the time of abolition the condition of the slave population was gradually improved, partly through humane motives in the island, but in great measure through pressure brought to bear by philanthropists in England; and the bonds were gradually loosened so that the position of the slaves, when emancipation came, was very different from that of their parents at the commencement of the century.

Most residents in, and many visitors to the West Indies, have read "Tom Cringle's Log" and "The Cruise of the Midge", the former of which contains unequalled studies of Jamaica life and character of the early years of the nineteenth century. Michael Scott, their author, came to Jamaica in 1806 to manage several estates: in 1810 he entered a business in Kingston the nature of which compelled him to travel frequently both by sea and road, and the experience of tropical scenery and nautical life thus gained formed the basis of the "Log", originally written at Raymond Hall in the Blue Mountains. After a visit to Glasgow in 1817, he left the island finally in 1822, and settled at Glasgow, commencing the publication of "The Log" seven years later in the pages of Blackwood's Magazine.

Matthew Gregory Lewis, better known from the title of his most famous work as Monk Lewis, owned Cornwall and other estates

in Jamaica, which he visited in 1816 and 1818. He died at sea ten days out from Black River, in the arms of his valet Tita, who was afterwards present at Byron's death. Lewis had the welfare of his negro slaves much at heart as is evidenced from a perusal of his "Journal of a West Indian proprietor." On both sides, his ancestors had interest in the island: and it is curious to note that he succeeded William Beckford, another Jamaica proprietor, in the representation of Hindon in the House of Commons. Lewis's principal acts were the abolition of the lash on his properties, the acceptance of negro evidence, an endeavour to supplement manual labour by mechanical implements, the erection of better hospitals, and the granting of extra holidays; and he generally did his best—not without success—to spoil his slaves. So strongly was he impressed with the evil arising from absent landlordism that in a codicil to his will he made it a condition of inheritance that the owner of his estates, whoever he or she might be, should pass three calendar months in Jamaica every third year. This was not asking much; and if every Jamaica proprietor had acted in that spirit, much subsequent trouble would have been prevented. The Duke of Manchester was here for a longer period—1808 to 1827—than any other governor. During his term of office, the Baptist Mission and the Presbyterian Church were founded, and Jamaica ports were made free to foreign nations. Bolivar, the Spanish Liberator, visited the island and nearly lost his life by an assassin's knife. The second Earl of Belmore was governor from 1829 to 1832. Accompanied by the Countess of Belmore he arrived on the 20th February, 1829, at a time when the island was in conflict with the home government on the subject of the treatment of slaves and religious toleration. Canning's resolutions for the amelioration of the slave population formed the basis of the instructions which Belmore received. At this time, one member of the House of Assembly suggested that a despatch on the subject from England should be burnt by the common hangman, and another proposed that it should be ignored on the assumption that the colonial militia could resist the forces of England; while some went so far as to threaten to transfer their allegiance to the United States. After protracted negotiations, a bill acceptable to the home authorities was passed in February, 1831. Islo Morgannwg, the Welsh bard and modern founder of the Gorsedd, sacrificed a property in Jamaica left him by a brother rather than obtain money as the fruits of slavery of which he was a great opponent. And Zachary Macaulay, who came as a lad of sixteen to Jamaica, obtained on a sugar estate experiences which coloured his life and made him an ardent abolitionist.

In 1831 the negro rebellion in St. James resulted in damage to the extent of £666,977, and in the following year the ill-favoured Colonial Church Union was founded with the object of opposing the dissenters.

Four Baptist ministers stand out prominently in the work of

the abolition of slavery in Jamaica—Thomas Burchell, Walter Dendy, William Knibb and James Mursel Phillippo. These four men were indefatigable in their endeavours to obtain fair treatment both in matters of religion and civic life, for the negro race; putting up with insults and hardships innumerable. Their only fault was that they were over zealous, and, in preaching equality, forgot almost entirely the influence of ancestry and surroundings.

In May, 1833 a law was passed by the Imperial Government which declared that from and after August, 1834, all slaves in the colonial possessions of Great Britain should be free for ever, subject to an intermediate state of six years' apprenticeship; this, however, was shortened to four years, and on the 1st of August, 1838, the total abolition of slavery took place in Jamaica. The sum of £5,853,975 was awarded to Jamaica slave holders in compensation for the manumission of their property, *i.e.* upwards of a quarter of a million of slaves; but much of this money found its way into the pockets of merchants in London, who held mortgages on the estates, and did not directly benefit the island.

In 1828, ten years before the abolition of slavery, the export of sugar was 101,575 hogsheds. In 1848, ten years after it, it had fallen to 42,212 hogsheds. In coffee the fall was much greater, from 22,216,780 lbs. in 1828 to 5,681,941 lbs. in 1848. In 1833 a College of Physicians and Surgeons of Jamaica was established, but was killed by professional opposition at home. Sir Charles Metcalfe, while he was Governor (1839-1842), did much to reconcile differences between the planters and the home government over conditions arising out of Emancipation; his statue in Kingston testifies to the regard in whch he was justly held.

In 1837, the *City of Kingston,* was the first steamship to reach Jamaica. In this year appeared an important contribution to the botanical literature of the island in James Macfadyen's "Flora of Jamaica." Three years later, Joseph B. Kidd, a member of the Scottish Academy, published his "Illustrations of Jamaica," a larger and much more pretentious volume than James Hakewill's "Picturesque Tour" of 1825: Kidd's subscription price was £20.

Philip Henry Gosse, the well known zoologist, visited Jamaica in 1844, where he remained for eighteen months, and collected and sent home specimens of many rare animals. In 1847 he published his "Birds of Jamaica," and, two years later a folio volume of plates in illustration. In 1851 he published his "Naturalist's Sojourn in Jamaica," in which he was much assisted by Richard Hill, one of Jamaica's most talented sons. In his scientific work, Hill corresponded with Darwin, and through his philanthropic labours he became acquainted with Wilberforce, Buxton and Clarkson.

An immediate result of the abolition of slavery need was felt for more labourers, and in 1842 the first batch of East Indian immigrants arrived from India, but the system did not prove last-

ing. In 1854 the experiment was tried of bringing Chinese, but without much success, as a large number returned to their native land. In all 1,152 Chinese were introduced. The question of East Indian immigration was re-opened in 1858, and again in 1869, when the recent system of indentured service was established. There was no importation between the years 1895 and 1899; in the latter year 615 coolies arrived in one ship. It was a sign of the time that the majority of them went on to banana plantations instead of sugar estates as formerly. East Indians who have worked out their indentures frequently start as shop-keepers. They are a law-abiding people except when jealousy and revenge incite to personal violence. Up to the end of 1915, 35,933 East Indians have been introduced. Of these 11,778 returned to India. In 1921 there were 18,846 East Indians in Jamaica, immigration having been stopped by the Indian government.

In 1845 a railway was opened from Kingston to Angels (north of Spanish Town), a distance of about fifteen miles.

In 1846 the House of Assembly declared that the action of the Imperial Government in equalizing the sugar duties on British and foreign productions had rendered it impossible to continue the institutions of the colony on their then scale: and during the whole six years of Sir Charles Grey's administration a war of retrenchment was waged. The treasury became bankrupt, and a deadlock ensued, the Assembly declining to do any business with the Council. This state of affairs welcomed Sir Henry Barkly (1853-56) to the colony. An act for the better government of the island was passed, by which the governor was authorized to appoint an executive committee to assist him in the general administration of the colony; a legislative council, consisting partly of official and partly of non-offical members, replacing the old council which had been wholly official.

In 1860 a line of mail-steamers was subsidised to run between Kingston and New York. This, the first steam communication from a port of the British West Indies to America, offered facilities for the shipment of Jamaica fruits, which had hitherto had no marketable value for exportation; and in 1868 was started the private fruit trade between Port Antonio and Boston, which, under the enterprise and perseverance of Captain Baker, proved a great boon to the island. It has since developed to a marvellous degree.

In 1865, during the government of Edward John Eyre, the outbreak at Morant Bay occurred, when Baron von Ketelhodt, the Custos of St. Thomas-in-the-East, and eighteen other colonists were killed. George William Gordon, merchant, planter, politician and independent minister of religion, a leader of the people of considerable importance, was tried by court-martial and hanged. But Governor Eyre was re-called; and, in the following year, Crown Government, under which the governor was armed with almost despotic power in the island subject only to home control, was or-

ganized under Sir John Peter Grant.

Grant's governorship which extended till 1874, is remembered for the reduction of the number of parishes from 22 (to which they had gradually increased) to 14; the formation of the constabulary on the lines of that of Ireland; the reconstruction of the judicial establishment; the establishment of an island medical service, a public works department and a government savings bank; the opening of telegraphic communication between Jamaica and Havana, by which means it first became possible to send telegrams from the island to Europe; the extension of educational advantages and postal facilities: the resumption of coolie immigration; the development of the Rio Cobre water-works; the dis-establishment of the Church of England in Jamaica—all due to his initiative, and also for the foundation of the fruit trade with America above referred to. Thus his tenure of office was an epoch-making period in Jamaica history.

Sir Anthony Musgrave (1877-82), carried through many useful undertakings—the regulation of coolie immigration, the reform of legal procedure, the establishment of electric telegraphs and coastal steamer service, the purchase and the extension of the railway by the government, and the re-organization of the botanical department. He also insisted on the importance of devoting attention to the minor products of the island, and Jamaica is to-day reaping the benefit of his policy.

For five years (December 1883 to January 1889), Sir Henry Wylie Norman controlled the destinies of the colony. His arrival marked the departure from crown government to some form of representative government—"a moderate step in advance," as Lord Derby termed it, in which the representatives of the people had a substantial amount of power and responsibility in the legislation of Jamaica, which was the outcome of a deadlock, as no suitable private person could be found willing to accept the post of nominated member of the council under Crown Government. Nine members of the Legislative Council were henceforth elected by the people on a franchise all too low; and against the united vote of six of these nine it was directed that the vote of the official members was not to be recorded. This change was not made without protests that it was no advance at all, that it was in fact a shadow, not a substance. In 1885 a widespread interest began to be taken in the decaying state of the sugar industry. In the same year a spontaneous movement was inaugurated for forming a volunteer militia, to do, if need be, in view of military operations in the Soudan, garrison duty in place of the regular troops which might be called off the island.

In 1886, a new form of poor-relief was inaugurated, by means of which the parochial boards administer the funds, under the control of a central board of supervision. About this time education, both secondary and primary, received a considerable amount of

attention, due in great measure to the action of the late Archbishop Nuttall, and the Jamaica Scholarship, tenable at an English university, was first awarded in 1887.

The desire for greater railway facilities led to steps being taken to ensure its extension to Montego Bay and Port Antonio, with foreign capital. Soon afterwards Norman left to take up the governorship of Queensland. His career in Jamaica was most successful.

In 1891, under the auspices of the next governor, Sir Henry Blake, (1889-98), an exhibition was held in Kingston, which did something towards enlightening the peasant population of the island about other countries, especially the United States and Canada, and towards stirring them up to take an interest in their own island; as well as bringing Jamaica more prominently to the notice of American, Canadian and English travellers.

In 1894 the railway was extended to Montego Bay, a distance of 113 miles from Kingston, and the branch to Port Antonio was opened in 1896. Forty years ago it took two days, and cost about £10, to drive from Kingston to Montego Bay. To-day, one can travel in a not uncomfortable third-class carriage, and get there in a little more than 7 hours, at a cost of 21/-. About this time, too, much was done to increase the number of roads and bridges in the island, which assisted materially in the agricultural advancement of the colony. In 1895 the number of elected members was increased from nine to fourteen, *i.e.* one for each parish of the island, the number of nominated and official members being at the same time proportionately increased, four of the nominated members not being called up. In the same year, the Jamaica Agricultural Society was formed and an impetus given to the practice of agriculture on scientific lines by the peasantry.

In 1899—during the governorship of Sir Augustus Hemming (1898-1904), a period of commercial depression—the four additional nominated members of the Legislative Council were called in to take their seats, raising the official side of the house to fourteen in number, thus balancing the fourteen elected members.

In 1901 was established the Imperial Direct Service between Bristol and Jamaica, by the quickest ship of which the passage was made in 10 days, but the service ceased in 1911 owing to Jamaica's unwillingness to continue to pay its share of the subsidy, £20,000 per annum. In 1907 occurred the earthquake which caused the death of about 800 persons in Kingston and loss of property to the extent of about £2,010,000. After trials in the law courts here and in England the insurance companies paid 85 per cent of the amounts insured without assessment. The reconstructed Kingston bears little resemblance to the old; reinforced concrete having supplanted the old-time brick buildings with wooden verandahs.

In 1910 a wireless telegraph station was established, and the Canadian West Indian Commission visited the island. Of late

years trade reciprocal relationship and even political union, with Canada has received increasing attention and has recently formed the subject of special enquiry, and regular steamship communication has been established.

After the hurricane of 1912, Co-operative Agricultural Loan Banks were formed to assist small landed proprietors to recover from its effects without the aid of government, and a Land Settlement Scheme was later added.

After the war much discussion took place with regard to the expansion of the sugar industry by means of central factories, and one such was successfully launched. Between 1839 and 1909, no less than 573 sugar estates went out of cultivation. The new impetus arising from the shortage of sugar during the war was short-lived owing to the fall in prices, and in 1921 the Legislature had to pass a Loan Law to aid sugar growers.

Various institutions have been formed for the improvement of the people. The Jamaica Imperial Association (1917) aims at economic, social, agricultural and industrial advance. Citizen Associations in various parishes aim at smilar objects locally, while the Jamaica League is specially concerned with the well-being of native Jamaicans. The Young Men's Christian Association has been established in Kingston, with a branch in Vere; and it is hoped that ere long the Young Women's Christian Association will be formed also. The Jamaica Nurses' Union, the Mothers' Union, the Child Saving League and the Women's Social Service Club all testify to the increasing interest which women are taking in the social wlfare of the community. Commissions have at times considered the condition of various diseases, vomiting sickness, yaws, pellagra, malaria and hookworm, the last-named of which is in the hands of the Rockefeller Institute.

In 1913 a branch of the railway into upper Clarendon was opened. But since that date development has been retarded by the Great War of Jamaica's part in which a brief notice is given in the next chapter; and by a series of hurricanes which had disastrous effects on crops; and in the autumn of 1918, Jamaica did not escape the world-felt effects of the Influenza.

In 1920 high prices were realized for Jamaica produce, but in the following year depression came, and economy was a matter of necessity. Towards the close of 1921 a Commission from the Colonial Office visited Jamaica in order to obtain first-hand information of the state of affairs.

In a somewhat rapid review of Jamaica History extending over more than two centuries and a half, the references to many events have of necessity been of the briefest.

The usual division of histories into dynasties, centuries or reigns, is at the best sometimes unsatisfactory. In Jamaica the limits of the epochs seem particularly elusive, affected as they have been by the developments and the restrictions of industries and

the social condition of the people, touched by waves more or less faint of British national and foreign policies.

The four political epoch-making events in Jamaica history are the establishment of civil government in 1661; the abolition of the slave-trade in 1807; the total abolition of slavery in 1838; and the surrender of representative government in 1866.

The development of the West Indian Colonies has been severely handicapped by the ever-shifting condition of the leaders amongst their peoples. Governors and officials of all sorts remained for a time only, and too many of the landed proprietors paid but little heed to the well-being of the slaves or labourers working on their estates. There has through the long years of Jamaica history, been but little evidence of the true home-life and village-life which went far to build up the England of to-day, or must one say yesterday. It is true to-day as it was when the Earl of Shaftesbury wrote it nearly two and a half centuries ago, "Nothing can be more advantageous to the country, nor so much contribute to the growth and prosperity of the plantations as that men of estates should settle amongst them." Good administrators, zealous workers, kindly philanthropists, as many of the controllers of Jamaica's destiny may have been, they stayed here as a rule too short a time to leave more than a passing impression. And the absence of the element of a body of leaders of thought and action, always headed by members resident in the colony for two or three generations, had too often its effect or reflection in the lack of continuity of action on the part of the people, in spite of the fact that many countrymen of the Bruce have helped to colonize the island.

V.—A PEOPLE IN THE MAKING.

The inhabitants of the British West Indies to-day belong to varied and widely separated nationalities. The aboriginal Indians —the Caribs, Arawaks and others—have almost entirely sunk under the march of civilization; and are now only found in small numbers in Dominica, St. Vincent and British Guiana, and, of less pure descent, in British Honduras and the Virgin Islands. The Spaniards, by slaughtering these simple-minded folk and supplying their places by slaves from Africa, laid the foundation of the predominating element of the present population of the Caribbean. The European nations which followed the Spaniards—the English, French, Dutch and Danish—have all played a part in the formation of the character of these people of African origin. As a result of the acquisition by Britain of some of the islands and settlements after occupation by other nations, and in a smaller degree, migration from island to island, there are, in some of the British West Indies, large sections of the population of other than English and African race. Grenada and St. Lucia show marked traces of their former French ownership, British Guiana of its Dutch, and Trinidad of its Spanish occupation and of French immigration at the time of the Revolution, which had its echo in the Western hemisphere. With the emancipation of the negro population, the importation of coolie labour, at first from China, later from India, was considered necessary by the planters, and is still so considered by many in British Guiana, Trinidad and Jamaica, although Imperial decision has been given against its continuance.

Thus we have to-day the following races inhabiting the British West Indies:—A few native Indians, British (English, Scotch, Irish, and Welsh, and their descendants), French, a few Creole (*i.e.,* born in the West Indies), Spanish, Creole negroes, labourers from India, Chinese who in Jamaica are rapidly developing as a trading class, and the Creole descendants of these Indians and Chinese, Portuguese, who originally came from Madeira, a few Syrians who came as traders, and a large number of mixed race of negro and European in varying shades, from Sambo (three-quarter black) to those in whom the strain is almost imperceptible, and a comparatively small number the result of connexions between negroes and coolies, Indians and negroes, and Europeans and Indians. The figures and estimates available give a total of approximately two million, one hundred thousand inhabitants.

Until recently, except in the Leeward Islands, where there was a slight decrease between 1891 and 1901, in all the colonies the population showed an increase, especially in the two great coolie-importing colonies of British Guiana and Trinidad; during 1918 a

decrease occurred owing mainly to emigration to Cuba. The increase as shown by the census of 1921 in Jamaica was not as large as it was anticipated it would be.

Taking the West Indies as a whole, those of African origin are in a large majority, and it is on their intellectual and moral proclivities and on their capabilities, influenced by conditions not of their making or within their power, that the future of the islands in great measure depends.

Some attribute the differences between the Barbadian negro and his Jamaica cousin to their having come from different parts of Africa, the one from Sierra Leone, the other from the Kru or Slave Coast; but there is no evidence in history to show that special sources were chosen for special islands. Bryan Edwards, the historian, was probably right when he pointed out that the similar and uniform system of life to which they were all reduced, the few opportunities and the little encouragement that were given them for mental improvement, were circumstances that necessarily induced a predominant and prevailing cast of character and disposition; and it is more than probable that the small differences above mentioned are due to the different economic conditions and the treatment they received. There is no doubt that the negroes of Martinique and Guadeloupe acquired characteristics from their French masters which differentiate them from those of the islands which have been English for two centuries or more.

In the West Indies—unlike the United States, where black and coloured are synonymous terms when applied to the human race—the coloured man is considered either to belong to the negro or to the white man, or to a middle set, according to the degree of proficiency he attains in education, culture, wealth of influence. There are many coloured men who rank themselves and are ranked, as negroes, working shoulder to shoulder with them in the field; there are other coloured men who sit side by side with their white brethren on the judicial bench, and attain to high rank in Church, Politics, Medicine, Law and Commerce; and between these two comes the great middle class of the British West Indies. The influence of the cultivated class and their interest in the peasants and workmen of their own colour is of the greatest importance in the steady advancement of the people at large; and in this connexion must be mentioned the trained and experienced teachers who are in constant touch with the children in the schools. The condition of life which originally produced the coloured man is gone forever, and his future depends in great measure on himself, with but comparatively slight interference on the one hand from the white, and on the other from the black.

The attempts made to found settlements of Europeans as labourers have been unsuccessful. The unhappy condition of the "mean whites" in Barbados was proverbial. In Jamaica, experiments were made by Germans from time to time, but the com-

munities became almost always, either dispersed or merged in the native race. The failure is not to be put down to the heat entirely; white men can and do perform manual labour in parts of the West Indies and keep their health. It was in great measure due to uncongenial surroundings, which too often led and lead to drink and other evils.

So far as Jamaica is concerned, there is a tendency, among the more enterprising of the rising generation who feel their horizon limited in their native island, to seek a wider field for their efforts in Panama, Canada and the United States, and latterly in Cuba. This is perhaps inevitable, and while it robs a colony of some of her promising citizens, it points to the growth of ambition, which is a factor in the development of the race. Like the Irish, Jamaicans often do themselves more justice abroad than they do at home; and, like the Irish, they go in a large measure where the mighty dollar draws them, rather than follow the average Englishman who prefers a competency under the Union Jack to possible riches under a foreign flag.

Negroes are by nature unready to leave their piece of land, subject to drought, for places more favourably situated; they are as a rule, unwilling to leave their homes where employment is scarce for a parish where labour is in demand; but the high wages on the Isthmus, and the banana plantations of Costa Rica and on the canefields of Cuba prove to many irresistible, especially in the case of overcrowded Barbados, and latterly of Jamaica; and generally speaking this characteristic of unwillingness to emigrate is giving way to a desire for betterment.

Physically negroes are not so strong as they seem, partly because they do not take a sufficiency of nourishing food, and they have little resisting powers when sickness attacks them. It would be almost impossible for any people to sleep as they do, in huts often overcrowded, frequently almost hermetically sealed, and from which the sun is almost invariably excluded by trees, and not be unhealthy. It is not true, though it is often stated, that negroes are immune from yellow-fever; and from statistics it would appear that they are more subject to malarial fever than white men, and various diseases are painfully evident amongst them. Recent research has shown that they are very subject to hookworm.

That superstition is still prevalent amongst them is unfortunately evidenced by the cases of obeah, or witchcraft, that come before the courts from time to time, but the cases are becoming rarer, and superstition is not unknown elsewhere. The eighty-eight years that have passed since emancipation have not been sufficiently long to enable ministers of religion and educators to grapple successfully with beliefs which are the direct inheritance of the darkest superstition, but when some of its members decline to sit down to a table of 13 and fancy ill-luck will follow the spilling of salt, it ill becomes a race with centuries of civilization behind

it to sneer, on account of superstitions, at another which has only had four generations with opportunities for self-improvement.

For many years after emancipation lack of interest on the part of local planters, and the omission in some cases to set a high ideal of life before them, led in many instances to lack of interest by the people in their own affairs, and an absence of a right popular feeling in connexion with their own moral and social well-being; and for those who have faithfully laboured to elevate the negroes around them it has too often been a hopeless effort against disinclination to steady labour, a tendency towards predial larceny, and a lack of morality—the baneful legacy of Africa and slave-day customs. But of recent years, in Jamaica at all events, the formation of Citizens' Associations is a hopeful sign that the people are taking an intelligent interest in their own welfare and are showing desire for co-operation. The unsatisfactory nature of the housing accomodation of the poorer classes is a factor in the unhappily high illegitimacy rate, as it is also undoubtedly responsible for part of the high infant mortality. But this mortality is also attributable to illegitimacy and to wrong feeding and other errors in the care of young children.

Bondage taught the slaves to look to their masters for food in health, for medicine in sickness, and subsistence in old age; and it would be too much to expect that the lesson of dependence should by this time have been entirely eradicated and that of self-dependence well learnt. In no country in the world, probably do field labourers and even domestic servants so readily throw up their work before they have acquired a new job, thus falsifying the proverb which they have adopted from the Irish, an equally thriftless race, which advises one not to throw away dirty water till one has clean. The needs of the unemployed are few. They have possibly in some cases, squatted on someone's land, thus having no rent to pay; few clothes are needed; fuel they want only for cooking purposes; and food is usually ready to the hand for the picking. If under these conditions some of them are indolent and improvident, with a marked disinclination for steady labour, who shall wonder? Times of disaster, due in most instance to drought or hurricane, or the result of war conditions, do occur now and again and generally find such men without any savings to draw upon; but poverty, as it too frequently occurs in crowded centres in Europe, made all the more bitter by severe cold, is absolutely unknown in the West Indies, although there is no doubt that of recent years the rise of prices due to the war has caused a large amount of actual poverty amongst many deserving members of the community, chiefly amongst the wage-earning classes. The experience of those who went to Europe to fight taught them to appreciate clothing and food, and they are no longer content to work for wages which previously satisfied them, and the sentiment has been adopted by their stay-at-home brothers and sisters.

Negroes usually spend their money as they get it, and make no provision for meeting liabilities, but they are not altogether spendthrifts. When they get high wages they think of their families. The Jamaicans labouring on the Canal zone or in Cuba yearly send home considerable sums to those dependent on them, and when the ideals of civilization have been further evoked by education, this thriftlessness will in a measure disappear.

The negro race has at present gone but a short way on the path of cvilization. The individuals are still as children, childlike in belief and faith. Once gain their confidence and they will trust implicitly. A cynic might add, as long as it suits them to do so. If there is one thing they dislike more than another, it is sarcasm. Many will put up with all the "cussing", as they call blame, that some masters choose to bestow, but ridicule of any kind they keenly resent. They too often lack pride in their work. The "can't do better" one often meets in response to complaint of work ill-done settles the matter in the negro mind. "Cho; too much boderation," which they apply to their own affairs, is of the same stamp. Gratitude is, it is to be feared, not a strong point with many of them, although here and there pleasing examples to the contrary occur.

As a people they are inclined to be litigious, and a case in the magistrate's court, whether as plaintiff or defendant, in the absence of more profitable forms of amusement, affords recreation. Many of them dearly love a bargain; and most West Indian shopkeepers have two prices—one they demand, the other they are prepared to take, the latter being asked of the intelligent customer.

Schopenhauer says that the English are the only nation which thoroughly realizes the immorality of lying. It is certain that he who expects truth from the negro, according to the English standard, will be disappointed. It is to be feared that but little improvement has taken place during the century and a quarter that has elapsed since Bryan Edwards wrote:—"I think the vice of falsehood is one of the most prominent features in their character." But there is certainly a better condition of affairs than that which caused him to write at the same time:—"Their treatment of cattle under their direction is brutal beyond belief." Much of their cruelty is due to pure ignorance and lack of sensitiveness in themselves.

Exaggeration is constantly met with. If a man is hurt they will say "Him dead"; if an arm is hurt, they will say, "Him han' bruk." If they feel sorrow they often hide it successfully. A servant will tell you that a near relation is dead with an also smiling countenance. They pay little heed to exactness in matters of distance, age and names. When asked how far it is to a certain place, the answer is almost invariably, "Not too far," or "Far enough," and they will give different dates of their birth, and different forms of spelling for their names, with the utmost unconcern. They "teef" small things and articles of food, as an English cook takes her perquisites; but,on the whole, domestic servants are honest and faith-

ful. After the earthquake in Jamaica, in many a home household effects and ornaments had to be stored in the most insecure manner, or were left about, and yet in spite of the fact that many strange workmen were employed in rebuilding and making repairs, comparatively few things were taken when petty larceny was very easy. But unfortunately burglary a few years ago began to make itself unpleasantly noticeable in Kingston and the neighbourhood.

Negroes have perhaps excelled more in acts of bravery called forth by war than in any other direction. Almost uniformly officers of black regiments testify to the courage of their troops and also to their loyalty; and the history of the West India Regiment is disfigured by but few cases of disturbance occasioned by insubordination. In the recent war the British West Indies Regiment loyally did their best to forward the cause of the Allies, and whenever they were called upon to face fire they did so unflinchingly.

As a race they are certainly not artistic, but they are acquiring a taste in dress and an appreciation of the pictoral arts that were wanting a few generations ago, although the discarding of the old time bandanas and simple cotton dresses for more elaborate toilettes is to be regretted. In music they have talent, but they have little poetry in their nature. They are passionately fond of pretty tunes, and singing and dancing are amongst their favourite amusements. The harder they work the more vigorously they sing. Amongst their many good points may be mentioned a regard for law and order, cheerfulness, loyalty to those whom they serve, and kindness to one another. In no country in the world perhaps can women and children walk about unprotected with less fear of molestation than in the West Indies, and in trains and tramcars their behaviour is still better than that of similar classes in more advanced countries, although some slight deterioration in this respect has recently been evident—due in a measure to an echo of the world unrest and to lessons learned by some of them in Europe, whither the war called them. Cases of drunkenness, though more frequent than they were, are not excessive, and very little rowdyism is met with; and an American writer who says that they obey the laws, not out of respect for the laws themselves, but because they stand in awe of the power that enforces the law, does them an injustice. Though their cheerfulness may be, as some say, in a measure based on a lack of ambition and indifference to advancement it is pleasant to live with. They are, in the main, kindly disposed to those in affliction, and readily and ungrudgingly perform acts of charity and benevolence.

Slavery left a fatal legacy of distrust in many cases on the part of the employed for the employer. Co-operation between planter or penkeeper and the labourers is sorely needed, although here and there one sees considerate treatment being rewarded by

cheerful, productive labour. A difficulty in the way of the land owners renting land to the peasantry is, it is said, the disinclination of the latter to pay rent regularly.

When well and regularly paid and treated with justice, if not liberality, by experienced persons, the negroes and coloured working men of the West Indies behave in a most creditable manner, a special example of which may be found in the conductors and drivers of tramcars. In Jamaica they may be seen exercising patience under irritating circumstances, showing kindness to small children and infirm persons, and, as a rule, displaying a politeness that it would be hard to beat in many a country that considers itself far more advanced. The universal unrest, the aftermath of the great war, reached the West Indies, but such strikes as arose were not very serious. There is evidence that the state of affairs, though never likely to be the same as before the war, is approaching normal.

African languages consist to a large extent in gesture. With the learning of English from the stolid Anglo-Saxon, gesture has in great measure disappeared. It is more noticed in the country than in town, and much more marked when they are talking with one another than when addressing white men. Negro-English, the speech of the less educated amongst them, is difficult to understand when first encountered; and, even when town talk is mastered, that from the rural negro is far from intelligible to the new-comer; and many a planter finds it saves time and trouble to address his negro labourers in their own dialect. Though he does not (as the African settler does) tell a man to do a thing "one time," he does tell him to "walk good." The negro is apt to talk things over to himself, and soliloquies are often heard on the road. Many an Englishman comes to grief by expecting a negro to grasp a thought as quickly as he does himself; but this lack of understanding is often due to a limited vocabulary rather than a lack of sense.

Miss Kingsley, in writing of the West African at home, said:— "As it is with the forest, so it is with the minds of the natives. Unless you live among the natives you never get to know them; if you do this, you gradually get a light into the true state of their forest mind. At first you see nothing but a confused stupidity and crime, but when you get to see well, as in the other forests, you see things worth seeing." Though in the West Indies the West African forest-mind has passed another stage on the road of civilization, the same remarks, to some extent, apply. Some people live in the West Indies a lifetime without getting beyond the "confused stupidity." It is to be feared that not all see, or at least see them continuously, things worth seeing. To those who wish well to the negro and endeavour to understand him, light comes now and then; but it is not given to everyone to have the sympathetic power and patience necessary to elicit the light and turn a blind eye to the shadows in the case of those who have not yet progressed as far as some of their brethren in intellectual growth. But during the

years which have passed since Miss Kingsley wrote, education on the part of the negroes and sympathetic interest on the part of the white people have done something towards removing misunderstandings.

Those, however, who are disappointed in the West Indian peasant of to-day, are, one would think, unreasonable. They expect too much of him. Progress is measured as much by the distance traversed as by the goal reached. When we consider that but four generations ago negroes were treated like oxen, driven too often to their work at the whip's end, and purposely kept from all advance, either in morals or in education, it is a matter of surprise and promise that they are to-day so far advanced as they are. So far as the future is concerned, there is no doubt that the bulk of the people of the British West Indies of African origin will become what Great Britain helps them to become. They have hitherto been moulded by British thought and example in a manner in which neither the Indians nor the Chinese have been moulded. They readily adopt British habits, customs and dress, while the Indians and the Chinese cling to their own ways of life.

There is no doubt that those misjudge entirely who believe that there is any general feeling on the part of the people in favour of annexation to the United States. Glad as are the people to receive the dollars which are sent in exchange for native produce, or which American visitors leave behind them, and anxious as some of them are not to offend the American market, the people of the West Indies are as loyal subjects as are to be found in the British Empire; and the negro peasants well know that they are far better off under the Union Jack than they would be under the Stars and Stripes. And it is improbable that the West Indians as a body would welcome federation with Canada.

Loyalty to the Crown, regard for law and authority, confidence in trustworthy leaders, good temper, a willingness to learn—all these form a good foundation on which a happy people may be moulded.

VI.—JAMAICA'S PART IN THE WAR.

While in the long period of Empire building before the Great War the British Colonies were only expected to do what they could towards their own defence, they at times played a part in Britain's military enterprises. Men from Barbados and Nevis joined the expedition of Penn and Venables which captured Jamaica. Just after the Jamaica militia had defeated the French at Carlisle Bay they contributed men towards the force which went against Hispaniola under Wilmot and Lillingston. In the war with Spain in the middle of the eighteenth century West Indians, as well as men from New England, co-operated with British troops. Trelawny, the Governor of Jamaica, raised and personally commanded a body of men in the attempt on Cartagena. In the Boer war Jamaica volunteered military assistance which was, however, not accepted.

On the outbreak of the war in 1914, Jamaica in common with the other West India Colonies, rose to the occasion. The Legislative Council met on the 13th of August, and voted £10,000 for Defence purposes. A gift of sugar to the value of £50,000 was voted, and such special laws were passed as circumstances appeared to demand. The old Jamaica Infantry Militia had been disbanded in 1906, in the words of Sir Sydney Olivier,* "in the belief that such a training school for citizens was superfluous in an age of established peace, and that in any case the populations of the West Indies could not possibly be of any consequence in any imaginary war of the then future." A St. Andrew Rifle Corps, formed at that time, still existed in spite of many difficulties in August 1914: it was then disbanded, and a new force, the Kingston Infantry Volunteers, was created.

On September the 10th, the German merchant supply ship *Bethania* was brought into Kingston as a prize by H.M.S. *Essex,* and was later condemned as a prize of war.

Individual members of the community went to join the army on their own account, even negroes going as stowaways. And many well-known Jamaica families mourn to-day the loss of sons who early in the war went willingly to lay down

*In an introduction to Lieut.-Colonel Ogilvie's "War Diary of the British West Indies Regiment" contributed to the 'Jamaica Times' in 1921.

their lives for the Empire. When the fear of German raiders on the island had been minimized and the extreme need for self-defence was reduced, England expressed a wish for troops from the West Indies. In April, 1915, Mr. William Wilson started a fund with a view of paying the expenses of those who wished to join the British Army but had not the means. A War Contingent Committee was formed and the Legislature subsequently voted the necessary sum for their maintenance upon a war footing to the extent of £60,000 per annum for 40 years; and a sum of £9,964 was raised by private subscription.

The 8th of November, 1915, is a red letter day in the history of Jamaica. On that day the first contingent sailed in the *Verdalla* to represent the colony in the cause of the Empire and Humanity. Recruiting meetings were held throughout the island. Three other contingents left in the following year.

The delay in the departure of the fourth Contingent had so far been due to a misfortune to the third. The transport carrying the latter had been caught in a blizzard before her arrival in Halifax. The men had not been supplied with clothing to suit such conditions, and the ship was not provided with heating apparatus, and as a result several hundred casualties from frost-bite occurred. The worst cases were landed in Halifax, while the transport conveyed the balance to Bermuda.

Between the 30th of May and the 8th day of September, 1916, out of a total of 2,991 men who had left the island for service, 573 were returned as unfit, of which number no less than 391 belonged to the third Contingent, and were reported to be suffering from the effects of frost-bite. It might have been expected that an accident which incapacitated over 35 per cent of the men in one ship would have seriously affected recruiting. It appears in the long run to have had very little effect.

While the work was proceeding in Jamaica on the lines indicated above, the Central Recruiting Committee had turned their attention to another quarter. It had been frequently stated there were large numbers of West Indians on the Isthmus who desired to enlist. In February 1916, men had come from Panama at the expense of residents there, and men had also come from Bocas del Toro by means of voluntary subscription raised amongst the British Colony in that place.

With the entrance of the United States into the war it became possible to enlist men for the British Army in what was no longer a neutral country. In May, 1917, Lieutenant L. W. Hitchins was sent to Panama with letters to the British Consul, Sir Claude Mallet, who gave his hearty co-operation. Between the beginning of May and the end of August no less than 2,091 recruits were obtained from the Isthmus and sent to Jamaica at the expense of the island, the United States Govern-

ment carrying 750 of this force free on a transport which chance rendered available.

Yet another factor was at this time at work to assist in the readiness of men to volunteer for service at the front. The feeling had been growing that in some cases service was being avoided by men who were well able to volunteer. Resolutions in favour of enforced military service had been passed by some Parochial Recruiting Committees. The Hon. E. F. Cox, Member for St. Andrew, had also proposed in the Legislative Council to introduce such a measure. Finally on the 7th of March, 1917, the Hon. H. A. L. Simpson moved a resolution in Council requesting that a Bill rendering Military Service compulsory be introduced. Accordingly on the 22nd March, the Attorney General introduced "A Bill entitled a Law to make provision with respect to Military Service in connection with the present War". The Bill, which provided for the registration of every male in Jamaica between the ages of 16 and 41, passed rapidly through the House and was assented to by the Governor on the 1st June.

The result of the registration was as follows:

Parish	Enlistments	Registrations	Totals
Kingston	960	11,495	12,455
St. Andrew	687	6,781	9,448
St. Thomas	617	6,262	6,879
Portland	781	7,571	8,352
St. Mary	1,256	12,734	13,890
St. Ann	958	8,422	9,380
Trelawny	508	5,203	5,711
St. James	564	5,306	5,870
Hanover	526	5,068	5,594
Westmoreland	951	8,290	9,241
St. Elizabeth	979	10,152	11,131
Manchester	784	8,243	9,027
Clarendon	770	11,521	12,291
St. Catherine	1,142	15,190	16,332
	11,483	122,238	135,601

Owing to an unfortunate lack of unanimity amongst the West India Colonies themselves, which existed throughout the war, the proposal that the contingents should be raised in the various islands and formed into service battalions of the West India Regiment was not adopted, but several of the officers of that Regiment commanded the new battalions.

The following table shows the dates of the departure of the various Contingents with the numbers of officers and men in each:

Contingent	Date	Officers	Men
First	8th November, 1915	12	722
Draft	24th December, 1915	2	53
Second	7th January, 1916	22	1,100
Third	6th March, 1916	25	1,115
Fourth	30th September, 1916	36	726
Fifth	30th March, 1917	30	1,656
Sixth	1st June, 1917	33	1,656
Seventh	20th July, 1917	22	851
Eighth	26th August, 1917	31	1,304
Ninth	2nd October, 1917	18	985
——	26th May, 1918	12	—
		243	10,168

The majority of men who enlisted were between 19 and 25 years of age, but a few were as young as 17 and some as old as 48. By occupation the majority were given as labourers, cultivators, carpenters and cabinet makers, clerks, bakers, engineers, smiths and mechanics, boot and shoe makers, tailors, coachmen and grooms, masons and builders and printers.

These contingents, to the number of about 10,000 troops, helped to form eleven battalions of the newly-raised British West Indies Regiment, which, after suffering from the cold on the voyages home and after receiving training in English camps—too often under very trying conditions to men from the tropics—did yeoman service.

The majority of the Regiment were employed in France, and attached to the Heavy Artillery for shell-carrying duties. Two battalions, the 1st and 2nd, were under General Allenby with the Egyptian Expeditionary Force. When they had the chance to meet the enemy in combat in the Jordan Valley they worthily upheld the reputation gained by the older men of the West India Regiment.

Major Wood Hill, D.S.O.,* who did his utmost to get the whole of the British West Indies Regiment into the firing line in Egypt and Palestine, says "No unit in Palestine had a better turnout by way of battalion transport than the B.W.I's. At one period a battalion had a hundred and twenty horses and mules, as well as thirty-six camels, attached to it. After six weeks in the line in the Jordan Valley, followed by a week's fighting and heavy marching into the hills of Moab, the regimental transport returned to Jerusalem fit and well, and this was due to the men's own fondness and extreme care of their animals. From boyhood, many of the men

*In "A few Notes on the History of the British West Indies Regiment."

have learnt to handle mules on the plantations, and this early training stood them in good stead."

In December 1917 Brigadier-General Armstrong wrote to Colonel Wood Hill: "I am directed by the Corps Commander to express his great regret at parting with the Battalion under your command which since the formation of the 21st Corps has been attached to it as the Corps Infantry Battalion. During the operations of the last two months it has shown an excellent spirit and the duties assigned to it have been carried out very much to the Corps Commander's satisfaction. The soldierly bearing and smart turnout of the Battalion have been maintained under the most trying circumstances, and the fact that this applies also to detachments away from your supervision, is most creditable to all ranks....."

"At the beginning of August, 1918"—Major-General Sir E. W. C .Chaytor says in a despatch—"the 1st and 2nd Battalions British West Indies Regiment received orders to proceed by march route from Ludd to the Jordan Valley, a distance of 50 miles, where on arrival they came under the orders of Lieutenant-General Sir H. G. Chauvel, K.C.B., K.C.M.G., commanding the Desert Mounted Corps. On August 11, 1918, the 1st Battalion British West Indies Regiment relieved a regiment of the 3rd Light Horse Brigade in the Mussallabe-Abu Tellul sector, and on August 13, the 2nd Battalion relieved a second regiment of the same brigade in the Wadi Abeid sector which formed the extreme left of the Jordan Valley defences. From this time onwards until the main offences took place, the two Battalions of the British West Indies Regiment were busily engaged in improving the trenches and general defences of their sectors. Great initiative was displayed in patrolling both by day and night, and much valuable information was obtained from prisoners captured by their patrols."

The same despatch gives details of the successive operations in which officers and men of the B.W.I.R. gained fame and awards.

On September 19, the day of the main attack, the 2nd Battalion British West Indies Regiment was ordered to carry out a demonstration towards Bakr and Chalk Ridges, with the object of preventing the enemy from operating against the right of the XXth Corps. This demonstration, which necessitated an advance against heavy artillery fire, was carried out with great steadiness and was completely successful. On the morning of September 20 a detachment of the 1st Battalion British West Indies Regiment occupied Chalk Ridge, while Grant Hill and Baghait were occupied by the 2nd Battalion, the enemy having evacuated these positions during the night. During the same morning and the following night, a company of the 1st Battalion under Captain R. J. Craig [British Guiana] came under heavy artillery fire from the direction of Red Hill [east of the Jordan], which was passed through with slight casualties.

During the following night, the 1st and 2nd Battalions, together with the New Zealand Mounted Rifle Brigade, moved forward to Khurbet Fusail, and at 3 a.m. on the 22nd September the 1st Battalion B.W.I. were directed on Jisr Ed Damieh with the Auckland Mounted Rifles to begin the attack on the bridge-head at that place. The Auckland Mounted Rifles Regiment and the 1st Battalion British West Indies Regiment broke through the bridgehead defences with a spirited bayonet charge and occupied the high ground commanding the bridge. Small detachments pressed down to the river under heavy rifle and machine gun fire and secured the crossing. The fire of the Battalion Lewis guns was very effective on this occasion against parties of the enemy attempting to cross the river.

While the attack on Jisr Ed Damieh was taking place the enemy began to concentrate on the west bank of the Jordan in the neighbourhood of Mafid Jozeleh Bridgehead, thus threatening the right flank of the New Zealand Mounted Brigade and 1st Battalion B.W.I. Regiment. The 2nd Battalion B.W.I. Regiment, co-operating with the 1st Light Horse Brigade, attacked the enemy at once and forced him back towards the Jordan, till at 6 p.m. he had been driven back to the neighbourhood of Mellahet Umm Afein, a mile and a half south of Mafid Jozeleh. The 2nd Battalion B. W. I. Regiment captured forty prisoners in this action. The majority of the men who took part in these operations were Jamaicans, but all the West Indian islands, British Honduras, and British Guiana were represented.

Major General Sir E. W. C. Chaytor concludes his report as follows:—

"The bearing of these two Battalions was excellent throughout the period. In the trenches their discipline was of a high standard, and great enterprise was displayed by their patrols. During the operations they displayed great steadiness under fire and dash in the attack, and gave proof of marching power of a high order."

In October 1918, Major General Sir E.W.C. Chaytor wrote to Colonel Wood Hill: "Many thanks for the B.W.I. Calendar which is an interesting souvenir. I regret that your Battalion has left my command, but hope to be able to see both it and the 2nd Battalion at an early date to thank them for the very good work they did both when holding the trenches in the Jordan Valley and during the subsequent operations. Outside my own Division, there are no troops I would sooner have with me than the B.W.I., who have won the highest opinions of all who have been with them during our operations here."

Finally Colonel Wood Hill says: "The record of the British West Indies Regiment shows that 135 men were killed or died of wounds received in action, and over one thousand died of sickness, mostly pneumonia, chest and lung trouble.

The wastage due to admissions to hospitals was terrible, and when the true figures are available, they will be sad reading, and prove conclusively that the average West Indian is no more able to stand the rigours and hardships of a European Winter than the Indian. The war was fought in so many countries with such a wide range and diversity of climate that it would surely have been possible to find one theatre of war where West Indians would have lived and worked to the best advantage.

Those Battalions that carried shells in France did splendid work, and the men behaved magnificently under shell fire, and they frequently earned the praise of their Corps Commander and of the Batteries with whom they worked.....

On the signing of the Armistice, there was a general concentration of all B.W.I. Battalions in France and Italy at Taranto. Here certain regrettable incidents took place, but this is not to be wondered at when you consider that several thousand healthy young West Indians were crowded together with little or no work to do, and all of them with a grievance as regards their pay.

When all the facts are considered, it is a marvel that the men behaved with so much restraint.....

One cannot close these notes without placing on record the splendid work of the West Indian Contingent Committee. The success they achieved deserves full credit and the Regiment owes them a very great debt of gratitude. The life and soul of this Committee has undoubtedly been Mr. A. E. Aspinall, C.M.G., and West Indians will never forget what he has done for them."

In November 1918, Major-General Budworth wrote, in the Field in France, to the Officer Commanding the 7th British West Indies Regiment as follows:

"General Sir H. S. Rawlinson Bart., G.C.V.O., K.C.B., K.C.M.G., commanding 4th Army desires me to convey to you his appreciation of the great assistance rendered by the 7th B.W.I. Regt. under your command to the Artillery of the Fourth Army.

By zeal, energy and hard work accompanied by unfailing cheerful endurance of all hardships all ranks of the 7th B.W.I. Rgt. have assisted materially in the victories gained by the 4th Army over the enemy."

Those who had, through age, duty or other reasons, to stay at home did what they could to assist. Jamaica, with other West India Colonies, contributed gifts of money to various funds, notably the Red Cross, Belgian Relief, Prisoners Aid, King George's Fund for Sailors, and Queen Mary's Fund.

For three years in succession during the war, the island was severely handicapped by being subjected to the devastating effects of hurricanes, to cope with the disastrous results of which special meetings of the Legislative Council had to be held. In spite of this, Jamaica sent £50,000 worth of sugar and she also contributed airplanes and motor ambulances, and supplied the endowment of a bed

in the Star and Garter Home for wounded soldiers. Large shipments were sent of warm garments, produce, sugar, rum, tea, cigars, cigarettes, fruits and preserves, the distribution of which was seen to by the West Indian Contingent Committee.

In August 1917 a Home for Children of members of the Jamaica Contingents on active war service was established by the Government at the Rio Cobre Hotel, Spanish Town.

When the troops returned the transports arrived singly and not several at a time, owing to urgent cables sent to Taranto from the Recruiting Committee. This was an advantage, as the shortage of rolling stock on the railway made the conveyance of men in numbers difficult and caused delay. The arrival of the boats also was very irregular, some came before, others after, the time first announced. When the first batch of men belonging to Kingston, St. Andrew and St. Thomas landed in Kingston the gaily decorated streets were packed with a cheering crowd. On that occasion the speeches were delivered in the Victoria Park, but on subsequent occasions addresses were made in the Parish Church with vastly increased dignity and effect. Possibly as the number of Welcomes increased the enthusiasm decreased, but this was offset by the greater expedition with which as experience was gained, the work was carried out. In spite of the difficulties the programme as outlined was generally adhered to and the majority of the men must have reached their homes within about thirty-six hours of the arrival of the Transport at Port Royal.

Mr. J. H. W. Park, the then Director of Public Works and Chairman of the Central Recruiting Committee, says at the end of his report: "The writer would like to say that in his view the greater number of the men of the British West Indies Regiment have profited by their experiences both physically and mentally. Since their return he has had letters from thousands and has probably dealt personally with hundreds. He has found the men anxious to better their position and surroundings and willing to exert themselves in order to do so. He confidently believes these men will in the future prove a real source of strength to the island and he feels sure that by their energy they will be an example to others."

A Central Supplementary Allowances Committee, appointed in Jamaica in March 1918, undertook the work of reparation of ex-soldiers, assisting them with regard to civil employment, loans to acquire land to cultivate or to build a house and the issuing of free permits to Cuba for those who wanted to go there. The teaching of trades, supplemetary pensions or grants in aid to disabled men was also undertaken by this committee.

So far as can be ascertained 250 officers and 11,042 non-commissioned officers and men of the British West Indies Regi-

ment and 381 officers of regiments other than the British West Indies Regiment went over seas from Jamaica. Eighty-two Commissioned officers connected with Jamaica lost their lives, and 1,019 non-commissioned officers and men. One Victoria Cross was gained; 27 Military Crosses; 5 Distinguished Service Orders; 1 Distinguished Service Cross; 1 Distinguished Service Medal; and 17 Military Medals, besides other distinctions.

Bronze Memorial Tablets, giving the despatch sent by the Secretary of State for the Colonies at the close of the war, testifying to England's appreciation of Jamaica's assistance, have been hung in the several Court-houses in the Colony; and three Memorial Crosses in honour of the dead are being prepared in Jamaica stone and marble, one for each County, to be erected in Kingston, Spanish Town and Savanna-la-Mar.

VII—AGRICULTURE.

Jamaica is remarkable for the great variation in soils and climate under which agricultural operations are conducted. Generalizations are therefore apt to be misleading and it is difficult to lay down any standard conditions of cultivation and management in any particular branch of tropical agriculture that can be accepted as of general application to those areas of the island where any special industry is carried on. In 1920, the average rainfall for the island was the lowest on record for forty-eight years, and yet Westmoreland suffered from excessive rain to the great detriment of the sugar industry.

In 1804 when Robertson surveyed Jamaica, he estimated it at 2,724,265 acres, of which 1,914,809 were uncultivated.

For over a century successions of able agriculturists from England, Scotland and Ireland have emigrated to Jamaica, while large numbers of young men with enterprise and spirit have come out as book-keepers to be broken in under the wise training of the older planters who have mastered all the chief problems of agriculture in the island.

The newcomer, therefore, should not expect to find the agriculturists of Jamaica backward and inefficient. There has been an unbroken record of the egregious failure of men skilled in the agricultural methods of other countries who have come to Jamaica and tried to cultivate here as they had successfully done in northern lands. It is significant, for example, that although American capital has developed on most successful lines the banana industry of the island, the planters and those who are actually growing the fruit are almost exclusively Jamaicans or English and Scottish planters who have had long experience of the country.

In recent years there has been a wide extension of knowledge and skill among all classes of the agricultural community, and if there is money to be made the Jamaican will do his best as a planter to secure it.

During the five years of the Great War the island experienced a drought and three autumnal hurricanes in succession. The lack of shipping and the embargo on certain products also contributed to a check on industry and production. In consequence the agriculture of the colony underwent a remarkable change and the Banana, which had previously represented about 60 per cent of the exportable produce of Jamaica, fell to a lower position of relative importance, while other industries such as sugar, rum, coffee, cacao, coconuts, logwood, fibre, and cattle gained greatly in importance as factors in the agricultural progress of the island. Unfortunately this was followed by a very serious drop in the price of sugar which affected the industry most seriously.

Varieties of Land and Climate.—When first erupted from the ocean the island of Jamaica consisted of pure volcanic material. A subsidence then took place whereby all but the highest mountains were immersed in the sea for a prolonged period. A heavy deposit of calcareous matter derived from marine animal life was then effected. At a later period the whole mass of the island was again raised so as to attain the present maximum elevation of 7,388 feet for the Blue Mountain Peak.

Tropical rains then operated on the superficial limestone deposit so as to wash this away altogether in some areas and in others to carve it out into forms adapted for the quick drainage of the rainfall. The rivers also scoured out valleys and spread out flats of rich alluvial deposit.

The most valuable lands in the island, therefore, and those first taken up by the British settlers have been the alluvial deposits for tillage crops and the upland limestones for grazing purposes. The coastal alluvial deposits are, on the whole, the richest and most productive, except for certain areas of swamp land which at a future date will doubtless be drained and developed. All the rich coastal lands are at present in occupation and are planted in sugar, bananas, coconuts, or furnish rich pastures of Guinea grass. There remains much land still to be opened up. If this were done on the lines of townships established in suitable localities, in place of the old haphazard manner in which small settlers have hitherto commenced operations, it might be for the improvement of the island.

The rainfall of the island, as is to be expected from its geographical position and the central ridge of mountains that runs approximately from east to west, shows marked differences. The extreme east end, both north and south, has an ample rainfall. On the south side the coastal region gradually assumes a semi-arid character until the region of the Black River is reached when a favourable and well-distributed rainfall again persists all along the coast to the northerly point of Montego Bay. From here in an easterly circuit, marked periods of drought are characteristic of the climate. These conditions, however, gradually improve until the region of St. Ann's Bay, whence a favourable rainfall for the profitable cultivation of all the major crops can be relied on in the whole coastal region to the extreme eastern end of the island at Morant Point.

As the hills rise up from the plains below, the rainfall also improves and in many cases the greater distance from a port and the less easy lie of the land for planting operations is more than made good on an upland site by the more genial climate and regularity of rainfall. Some of the most valuable soils are on the southern alluvial plains, *e.g.*, Lower St. Catherine and Vere. Here irrigation has been established and the growth of canes and bananas is conducted under highly favourable conditions for production.

Agricultural Industries.—The total area of Jamaica is set at 2,692,587 acres of which 413,440 are level lands. The acreage alienated from the Crown and vested in individuals or trusts is recorded as 2,209,205 acres, of which about one half is under cultivation, and the other moiety is in wood and ruinate.

Estates in Jamaica consist of, in the main, Sugar Estates, Coffee Plantations, Banana Plantations, on which Cacao is sometimes grown, and pens which are devoted to horses, mules and cattle.

The following summary gives Agricultural Statistics for a period of forty years at intervals of ten years. The figures represent statistics as per tax returns.

	1880	1890	1900	1910	1920
Ground Provisions	51,334	81,806	85,470	85,534	74,553
Bananas		9,959	27,543	79,283	55,368
Canes	39,712	32,342	25,616	31,659	53,794
Mixed Cultivations				19,622	38,134
Coconuts		7,816	12,382	16,102	37,837
Coffee	18,456	21,990	24,865	24,706	22,297
Cacao	26	1,183		11,451	18,014
Minor Products			1,865	547	695
Tobacco	408	288	347	901	454
Oranges				2,282	367
Corn	716	574	430	605	310
Tea					100
Rice					61
Ginger	100	206	189	295	56
Arrowroot ...	9	10			56
Vegetables ..	29	72			37
Cotton				60	18
Nutmeg					10
Cassava					4
Ground Nuts	2	10			
Total acres tilled	110,792	156,256	178,707	273,047	302,165
Guinea Grass	120,443	123,504	503,573	653,750	772,578
Commons	307,805	364,755			
Wood and Ruinate	1,161,441	1,268,732	1,218,732	1,239,205	997,311
Grand Total	1,700,481	1,913,217	1,901,012	2,166,002	2,072,054

Crown Lands.—The following table shows the Government lands that are under lease.

Parish	Unoccupied	Under lease	Unpatented	Totals.
	Acres	Acres	Acres	Acres.
Kingston	110	1,210	—	1,320
St. Andrew	4.448	313	—	4,761
St. Thomas	23,922	8	—	23,930
Portland	72,815	—	1,120	73,935
St. Mary	1,183	11	—	1,194
St. Ann	28,734	39	4,335	33,108
Trelawny	43,765	—	14,307	58,072
St. James	12,711	10	1,700	14,421
Hanover	1,316	—	—	1,316
Westmoreland	2,099	27	—	2,126
St. Elizabeth	14,781	5,000	5,570	25,351
Manchester	2,530	300	—	2,830
Clarendon	6,884	5,478	7,300	19,662
St. Catherine	30,356	165	6,200	36,721
Grand Totals	245,654	12,561	40,532	298,747

On the 16th November, 1895, a scheme for the sale of the Crown Lands to small settlers was brought into operation. Under this scheme not less than 5 acres nor more than 50 can be sold to any one person. A deposit of one-fifth of the purchase money for the land required must be made by the applicant, after which a survey of the land is made and the applicant is placed in possession, the remaining four-fifths of purchase money together with the £2 for the cost of survey, being payable in ten years by equal yearly instalments. If within the period of ten years the purchaser shall have brought one-fifth of his acreage into good bearing in kola, coffee, oranges or other permanent crop-producing plants, he is released from payment of, or is refunded, as the case may require, one-fifth of the purchase money. The scheme was partly suspended during recent years owing to the large amount of land that was out on credit, but on 3rd December, 1914, it was started afresh under amended rules. Under the new rules Land Boards were created, and no more than 300 acres are granted to one purchaser, nor less than 5 acres, except in cases specially approved by the Governor. Up to 31st March, 1921, 4,963 lots, covering 46,933 acres, were sold and put in possession of instalment and outright purchasers who had paid £44,852. This excludes 519 lots covering 5,445 acres taken back from defaulting purchasers and sold afresh.

In 1889 when the Jamaica Railway was sold to Mr. Frederick Wesson and his associates on condition that the existing lines were extended to Montego Bay and Port Antonio from Porus and Bog Walk, respectively, the Surveyor-General was charged with the duty of acquiring lands for the tracks of these extensions. The

tracks are 120 miles long and cover 1,160½ acres of land acquired from 915 landowners, and cost £82,639. 8s.

Under the 34th section of the agreement attached to Law 12 of 1889, the Promoters of the Railway were entitled to one square mile of Government land for each mile of Railway constructed, and 74,443 acres, or 116½ square miles of land, were conveyed to them, leaving 2,367 acres, or three and two-thirds sq. miles selected by the Promoters, and to be conveyed to them on forfeiture. These lands, which were in the hands of the Administrator-General on behalf of the Receivers of the West India Improvement Company of New York, ultimately passed back into the hands of the Government by purchase at 5s. per acre. A large part of them extends over the northern portion of the parish of St. Thomas and the southern part of Portland. All this region consists of virgin lands and is well watered with numerous springs and rivers. It possesses a most salubrious climate and ranges from 2,000 to 6,000 feet in height, and embraces some of the finest coffee land in the island. The geological formation is chiefly of trappean and metamorphosed series, and it is of the same character as the once rich coffee lands of the parishes of St. Andrew and St. Thomas; but as these are getting worn out that land is the only remaining coffee land of a first class character in the island.

The following rules for the sale of Crown Lands to settlers were approved by the Governor:

1. A Land Board shall be appointed in each parish in which the Government owns sufficient Crown Lands to justify its creation. The Board shall consist of the Member for the Parish, the Chairman of the Parochial Board, the Collector of Taxes, and two other members to be appointed by the Governor. The Board shall elect its own Chairman and the quorum shall be the Chairman and two others. The Board shall forward its recommendations to the Colonial Secretary.

2. The duties of the Board shall be to consider and advise the Government as to the best means of opening up Crown Lands for settlement and as to the methods of providing means for making and maintaining roads into such Crown Lands.

3. No more than 300 acres will be granted to one purchaser, nor less than 5 acres, except in cases specially approved by the Governor, nor shall any two grants of 300 acres be allotted to run continuously and contiguously without such approval. The Governor will, so far as practicable, adopt the general principle that out of every block say of 1,000 acres, not more than one block of 300 acres should be sold.

4. The price at which the land will be sold may be learnt at the office of the Surveyor-General or from the Bailiffs in charge of the different parcels. The value of land to be sold shall be fixed by the Surveyor-General in consultation with the Local Land Board with the approval of the Governor.

5. Each applicant for the purchase of land must submit a recommendation from a person of good standing to whom he is personally known.

6. The Surveyor-General on receipt by him of an application in the form endorsed hereon accompanied by a recommendation and on deposit of one-fifth of the price of the land shall cause a survey to be made of the quantity of land applied for, the applicant receiving notice as to the time when the survey will be made. Applicants' lots shall run continuously and contiguously with no blank land between lots, and possession will not be allowed to any applicant till survey has been made defining the lot purchased.

7. Any application may, however, be refused, and the deposit refunded, by the Surveyor-General at any time previous to the delivery to the applicant of the Certificate mentioned in Rule 10, whether the survey approved by the Surveyor-General mentioned in Rule 6 entitling the applicant to possession has been made or not; and on tender of refund of the deposit the application shall be deemed to be withdrawn.

8. On the survey being made and approved by the Surveyor-General, the applicant shall be entitled to possession of the land allotted to him on such survey, subject, as in Rule 7 and 9, to refund of deposit and cancellation of sale previous to delivery of Certificate.

9. If the applicant shall be dissatisfied with the situation or configuration of the land allotted to him on such survey and shall within fourteen days after the survey give written notice thereof to the Surveyor-General, or to the Surveyor who made the survey, or to the Bailiff in charge of the land, he shall be entitled to a refund of one-half of the amount deposited by him as above and his application shall be deemed to be withdrawn.

10. If such notice shall not be given, the applicant shall on approval of the survey by the Surveyor-General, be deemed to be the purchaser of and to be in possession of the land allotted to him on such survey, and as soon thereafter as practicable a Certificate shall be delivered to him by the Surveyor-General who shall keep a duplicate of such certificate in his Office.

Government Department.—The Government Department of Agriculture has its headquarters at Hope, near the terminus of the Electric Cars at Papine.

Some 1800 acres of the old Hope estate are available for the operations of the department at this centre. The head office is situated in Hope Gardens. An experiment station of about 100 acres, where the various economic plants are cultivated and studied, adjoins the Gardens. A large nursery for the distribution of economic and ornamental plants is an important part of the establishment. About 400 acres of grass lands are devoted to the purposes of the Government Stock Farm where herds of pedigree Jersey, Zebu-Jersey, Guernsey and Red Poll Cattle are maintained. An English thoroughbred stallion and a Proof Ass are kept at stud.

The main business of the Stock Farm is the development of the Dairy Industry of the colony. Milk is delivered twice daily to public institutions in Kingston.

The Farm School is also established at Hope. Here young men are trained in practical agriculture and receive a general training for agricultural pursuits in the colony.

The Department of Agriculture is in charge of the Botanic Gardens at Castleton and Cinchona, of the Public Gardens in Kingston, of the plant nurseries in various parishes, and it has recently embarked on a large plantation of 900 acres of Sisal Hemp at Lititz on the savanna lands of St. Elizabeth.

In 1921 a Stud Farm was established at Grove Place in Manchester on a pen comprising 3,362 acres of land, a splendid array of bulls of the best breeds for beef, milk and draught, besides a thoroughbred stallion and a Kentucky Proof Ass, are here available for public use at moderate fees.

The Jamaica Railway passes right through Grove Place, which is thus favourably situated for the use of the public.

A complete and ubiquitous system of inspection for dangerous diseases of plants is maintained by a staff of four Inspectors who are constantly employed in watching and treating any cases of dangerous diseases of plants that arise.

The control of contagious animal diseases is effected through the services of the Government Veterinary Surgeon.

At the Government Laboratory, which is also situated at Hope, the scientific work of the Department in Chemistry, My-

cology, Microbiology and Entomology is carried on. The laboratories are well equipped and an experimental distillery enables practical problems in the fermentation of rum to be worked out on the spot.

Jamaica Agricultural Society.—The Jamaica Agricultural Society was formed in 1895, with the Governor as President, the objects being to obtain useful information and disseminate it, encourage improved cultivation of products, improve breeds of stock, and watch over the interests of the agricultural industry generally. The Board of Management consists of the Governor as President, the Director of Agriculture, *ex-officio*; two Vice-Presidents and fifteen members elected by the Society. The Society receives a grant from the Government. The subscription for membership of the Society is four shillings per annum, foreign members five shillings. One of the first matters undertaken was that of organizing local associations of agriculturists in different parts of the island, and there are now 250 affiliated Branch Societies at work in the various parishes. Some of the Branch Societies are important local organizations, holding shows and local competitions in agriculture and watching over the agricultural interests of the community. Premiums are offered for new cultivations of staple products. Seeds and plants with printed instructions, are widely distributed. Lectures and demonstrations under the auspices of the Society are regularly given by the various Agricultural Instructors, of which there are now sixteen, the Secretary also acting as Supervisor of Instructors.

The Society publishes a monthly journal, the first number of which was issued in January, 1897. It is sent free to all members of the society and of the local branches and has an issue of about 7,000 copies.

Agricultural Openings.—For those who have no capital there is no opening in Jamaica. Those who have will be wise to come to Jamaica, and to spend at least twelve months in examining the different parts of the island before investing money. If temporary employment can be obtained on an estate or pen, so much the better. Experience will be gained of the people and the climate. It must be remembered that visiting a tropical country is very different to working in it, even though the work be simply supervision.

Jamaica offers attractions to several classes of immigrants from England and other lands in temperate climates; to those who for reasons of health or other causes wish to make a livelihood by means of agriculture in a warm climate; to those who wish to merely reside without working for a time or permanently, in such a climate; to those, who, through reasons of health, wish to avoid the rigour of winter; to those who have broken down in health and need open air and rest; and lastly to holiday seekers.

The first named class should apply to the Agricultural Society for advice. Those of the second class would, if they rented a house, find living—in the country parts especially—economical. The third and fourth classes would find that ,with the exercise of reasonable precautions against the heat of the sun and getting wet through rain, they could, if they wished, live practically in the open air all day and all night. But the ordinary holiday-seeker, who has no resources in himself and possesses no hobby of a natural history character, is apt, after the first effect of newness and admiration for the scenery has worn off, to find Jamaica dull. Beyond riding, driving and motoring and walking in the early morning and late afternoon, golf here and there and polo, cricket, tennis to those who have introductions to residents, Jamaica has not much to offer—except the beauty and variety of its scenery and the equability of its climate; and to these too high praise cannot be given. No arist's brush or camera's lens has yet done full justice to the ever-varying beauty of Jamaica's scenery. Those pleasure-seekers to whom attractions similar to those offered at Monte Carlo or Brighton are essential should not come to Jamaica. Those to whom nature in her smiling mood appeals will never be disappointed.

VIII.—MANUFACTURES, TRADE AND COMMERCE.

Manufactures.—With the exception of four factories which make extracts from dye-woods (logwood and fustic) and one which makes rope from Sisal hemp, the manufactures of Jamaica are confined to the preparation of agricultural products or supplies for local use. Chief among the former are those of sugar and rum, tobacco in the form of cigars and cigarettes, coffee, cocoa, orange oil, honey, copra and evaporated bananas. Among the latter are those of ice, matches, biscuits, mineral waters, and corn (maize) meal, besides which there are electric light, gas and water-works, foundries and engineering works.

Sugar growing and manufacture was much stimulated by the high prices during 1919, 1920 and the early part of 1921, and the acreage under sugar-cane was largely extended. Several central factories were erected and other factories enlarged, machinery of greater capacity being installed in many places. Unfortunately a severe fall in the prices of sugar and rum has seriously embarrassed cane-growers and manufacturers for the time being.

One of the most important branches of manufacture is that of Jamaica Cigars, which are made from tobacco grown in the island with the exception of the outside wrappers, these being made of imported leaf. The cultivation of tobacco and its subsequent manufacture provide employment for a large number of skilled workers. These cigars are capable of holding their own against their Cuban competitors.

The production of Essential Oils, of sweet and bitter oranges, has developed during the last ten years into large proportions, and those oils now compete strongly in the markets of Europe and the United States with those from Sicily.

A large industry has grown up in the making of jipi-japa hats, woven from the fibre of a small palm. This is exclusively a cottage industry, and the makers are now able to compete successfully against all but the finest description of so-called Panama hats.

There is a dearth of skilled craftsmen both for the construction and the repair of objects; but the comer would probably have to make his own business connection, and would not readily find employment. The carpenters and cabinet-makers of to-day are as a body not equal in merit to those of the old days. In the very early days cabinet-work was done by competent artisans brought out from England for the sugar estates, which were in effect small villages. These artisans in their turn trained competent native artisans. But while the workmanship was excellent, the details of many a piece of furniture, notably the bed-heads, show that fancy, unrestrained by knowledge of the laws of design, may result in strange contortions,

not pleasing to the critical and experienced eye. Two influences have tended towards bringing about this failure to keep up to the standard of mechanical skill of old times. The one is the natural deterioration of an art when it receives no stimulus either in the way of teaching or of appreciation of good work; the other, a desire for things cheap. However, attention has recently been given to these matters, and the work of the Kingston Technical and Continuation School is already having an effect in improving the work of the rising generation. The old talent and willingness is there, latent, awaiting only training and encouragement. But mere mechanical skill without the guidance of the true principles of art will never produce work of a high order, and government encouragement of art has hitherto been markedly lacking. The cabinet work produced at the Government Industrial School at Stony Hill is, however, worthy of praise.

Finance.—The total Revenue of the island for the year 1920-21 amounted to £2,347,361, and the total Expenditure to £2,332,635, giving an excess of expenditude over revenue of

The Public Debt in March 1921, was £4,011,561.

Imports.—The following is a summary of the totals of the different groups of articles entered for home consumption in 1920 compared with 1913, a pre-war year.

	1913	1920
Food, Drink and Tobacco	1,224,389	3,280,059
Raw material	121,825	1,296,105
Manufactured articles	1,488,666	5,724,856
Miscellaneous and unclassified	2,163	8,390
	2,837,043	10,309,419

The following table gives a comparison of the proportion of the imports from various countries in each tenth year since 1880.

1880	£1,475,197
1890	2,190,745
1900	1,652,675
1910	2,614,943
1920	10,313,282

They were obtained from the Countries named in the proportion specified:—

	1880	1890	1900	1910	1920
United States	32.1	33.9	57	43.3	58.5
United Kingdom	52.6	56.2	18.5	47.3	29.7
Canada	11.7	7.4	20.4	6.6	8.6
Other Countries	3.6	2.5	4.1	2.8	3.2

Before the war the United States had a large share of the trade of Jamaica and other West India Colonies near her shores, and England was losing trade in nearly all. Owing to the abnormal conditions imposed by the war no safe deductions are to be drawn from the statistics of late years, with regard to the future, but the imports came in increasing proportion from the United States at the expense of the United Kingdom; and the general transference of the trade of Jamaica from the latter to the former which had been in progress for many years was hastened by the war. For trade with Canada a new era is opening owing to the passing of a Reciprocity Treaty in 1920, by which Jamaica arranged to give a 25 per cent preference in favour of Canada* in return for Canada's preference of 50 per cent to all the British West Indies.

Jamaica's tariff is framed, without any reference to the sources of origin of the articles taxed, with the object of raising revenue, though with perhaps a desire to protect a few of the local industries. Many articles are subject to an import duty of sixteen and two-thirds per cent *ad valorem*. During the war an export duty was imposed on certain articles (Logwood Extracts, Coconuts and Hides), which in 1917-18 produced £47,864 and in 1920-21 £35,502, but this means of raising revenue has since been abandoned.

Jamaica yearly pays large sums for imported pork, butter, milk, corn and oats, although pigs and cattle are easily raised, butter easily made and corn readily grown. If the world's shortage of food teaches Jamaica to depend on her own resources, good will have come of evil. The Director of Agriculture is experimenting with the manufacture of tinned milk. Large sums are paid for fish, while the sea around the coast is teeming in fish; but experiments made in steam trawling in 1898 were not encouraging. owing to the extraordinary nature of the sea bottom. Large sums are also yearly paid for lumber, and in the present condition of the labour market it is said to be cheaper for a planter to import American pine and pay the freight in the island to his estate, than to pay for the labour of cutting down and sawing up a better tree on his own property, in spite of the largely increased cost of foreign lumber. An answer to all this may probably in part be found in the difficulty often experienced in obtaining either skilled or trustworthy labour, and, in the case of provision crops, in the depressing effects of predial larceny and occasional droughts. An endeavour to utilize native hardwoods in preference to the inferior, imported article is often frustrated by the uncertainty of the supply. The high price of lumber and cement, coupled with the high price of labour, deters many from building, with the result that there is a great shortage of residences, especially in the neighbourhood of Kingston.

*Barbados, Trinidad and British Guiana gave 50 per cent.

Exports.—The value of the Exports for 1920 was £7,146,010, as against £5,627,329 in 1919. The following is a comparative statement grouped under the five principal heads required by the Board of Trade:

	1918	1919	1920
Live animals, food, drink, &c.	2,022,286	4,913,396	6,151,675
Raw material	173,304	663,600	412,227
Manufactured articles	480,556	44,102	571,429
Miscellaneous unclassified	8,751	4,557	1,271
Bullion and Specie	1,674	1,674	9,408
	2,686,571	5,627,329	7,146,010

The following statement shows the relative importance of the island's products during the last three years:

	1918	1919	1920
Sugar	24.0	23.8	42.6
Fruit	12.8	22.0	24.0
Logwood Extract	13.7	6.5	6.1
Minor Products	19.9	7.8	5.6
Coconuts	4.3	5.1	4.7
Rum	1.6	16.7	4.1
Dyewoods	2.7	2.1	4.0
Cacao	6.0	5.2	3.1
Coffee	8.5	6.4	2.6
Tobacco	3.8	1.1	1.7
Pimento	2.7	3.3	1.5

In 1893-94 the products of the fruit plantations (principally bananas) for the first time deposed the products of the sugar estates (sugar and rum) from the premier position which they had ever held in the exports of the island, and since then the fruit industry (principally bananas) grew steadily into importance with but temporary set-backs owing to the hurricanes of 1903 and 1915, 1916 and 1917, until war conditions gave a great impetus to the sugar industry and for a time to logwood, and a set-back to bananas.

Comparing the present with the past, we find that the largest amount of sugar exported in any one year was 150,352 hogsheads in 1805, while the largest export of rum was in 1806 with 58,780 puncheons (4,232,160 gallons), as against 13,465 exported in 1910. But it must be borne in mind that at the beginning of the last century all the sugar and rum consumed in England came from the West Indies. There was then no competition from Mauritius, Queensland, Natal, Borneo, Peru or Egypt or from the beet-sugar of Europe.

During the Great War, sugar, rum, logwood and mules sold at greatly advanced prices; as also cacao, anatta, ginger, orange oil,

honey and hides. The war gave sugar planters a splendid opportunity, and the establishment of preferential treatment for British-grown sugar and other crops opened up a bright future for the colony. But the sudden slump in the market has crippled and indeed threatened to ruin the industry; despite the preferential duty given by England.

The change in destination of exports adverse to the mother country was due probably chiefly to war conditions. A shortage of shipping caused a great hindrance to the export trade.

In 1918 of the total exports 50.2 were sent to the United Kingdom and only 23.4 to the United States, 14.3 to Canada and 12.1 to other countries. In 1920 the figures were United Kingdom 42.7; United States 28.2; Canada 21.9; and other countries 7.2.

The total value of Exports for years at intervals of decades for a period of forty years is as under.

1877	1,458,669
1887	1,509,010
1897	1,470,241
1907	1,992,007
1917	2,478,917

Although seriously handicapped by drought the exports of Jamaica in 1920 show a record value of over seven millions sterling, due to the high prices realized. This resulted in an increased value of properties. During 1921 the lowering of the market values abroad was responsible for a decrease.

Coffee and dye-woods, two of the principal exports, may be regarded as a permanent source of income, and both received an impetus during the war. At present, there are no signs of abatement in the popularity of the banana in America, and its sale in England has been developed to a remarkable extent by the working fleet of steamers specially fitted for this trade. Oranges, which ever since the Spaniards introduced them have grown freely in the island, can seldom find a market in the United States owing to the very heavy protective tariff there, but very large quantities are exported to the United Kingdom early in the season before Spanish and Italian fruit is fit for consumption, and it is hoped that they may under changed conditions find a market in Canada. Grapefruit, which is fully appreciated in America, has a future in the mother country.

In Jamaica the so-called ground provisions—yams, cocoes, sweet potatoes, breadfruit and gungo-peas—are produced almost exclusively by the peasantry; and in spite of the fact that more land is every year put into cultivation the cost of food stuffs is yearly becoming dearer. If cultivated on a larger scale by planters they would undoubtedly be cheaper; and a larger market for such foodstuffs would be found on the Isthmus of Panama and in Cuba whither a certain amount already goes; but fear of predial thieves keeps many a man from planting a crop of provisions easily stolen. It is not, however, fair to accuse the majority of the population of

being thieves. Many of the thefts are effected by the same men who are not deterred by short sentences of imprisonment and whom public opinion in England, if not in the colonies, saves from the lash. Recently local societies for the combating of predial larceny have been established.

The extension of the railway to Montego Bay, to Port Antonio and into Upper Clarendon, with the considerable addition to the excellent roads of the country and the bridging of rivers (which were formerly impassable in the rainy seasons) during the *regime* of Sir Henry Blake, undoubtedly gave a great impetus to trade and commerce in the island; and the improvement in shops—or stores, as they are here called—which has taken place during the last few years, both in Kingston and the smaller towns, is an encouraging sign of the progress of the community.

With regard to shipping the conditions arising from the war render any comparison of the number of steamships arriving at and leaving Jamaica during the last few years of little value. Harbour dues during the war suffered a loss of upwards of 60 per cent.

But this state of things is now rapidly altering for the better. There is already practically a weekly service of steamship taking passengers direct to and from England, and to and from America. Frequent steamers give important facilities for the carriage of cargo, and every fortnight there is a steamer from Halifax which calls at Kingston *en route* to Belize. The favourable position of Kingston as a port of call for steamers passing through the Panama Canal or going to the Isthmus or Central America is being increasingly recognized by lines from the United States and Europe.

In the main the war has taught Jamaica as well as other countries, a useful lesson in self-support.

Of late years the West India Committee in London, which was formally founded about 1760, although it had probably then been in operation for some time, has taken steps to fill so far as it can for the West India colonies the part played by the agencies-general of the autonomous colonies; and by the work of that Committee, sympathy between the West India colonies and the mother country has been engendered, and the conditions of life in Jamaica and her claims on England are better understood than they were. This was made abundantly evident by the many efforts made by that Committee on behalf of the West India Colonies during the war.

In Jamaica, American as well as English gold and silver are legal tender, but all accounts are kept in sterling though prices of articles are often quoted in dollars, especially in places frequented by American tourists. It used to be commonly named as a medical man's fee for a visit to his dispensary, but this has now risen to six shillings. Smaller coins are provided by special 1d, ½d and ¼d pieces, in nickel. Three banks (Colonial Bank, Bank of Nova Scotia and Royal Bank of Canada) issue notes of a pound

value each. In addition to these there is a branch of the Canadian Bank of Commerce in Kingston.

In Jamaica's commercial destiny in the immediate future, the following influences will play their parts, as they have played them during the past few years—a growing interest in the island on the part of the mother country as recently evidenced by the official visit of the Parliamentary Under Secretary of State for the Colonies in December, 1921, and an ever-widening feeling for closer union amongst the several parts of the British West Indies; sympathy between Jamaica and the Dominion of Canada, to which practical effect has recently been given, though the proposal to have closer fellowship of a political nature receives but little support, and the increased friendliness between inhabitants of the United States and their English cousins: and lastly the yearly visits during the winter months of a large number of tourists from England and America, and a few from Canada, although these have not of late come up to expectations formed a few years ago. The island benefits far more by the few winter residents, evident in the winter of 1919-20, than by the more numerous transient visitors on tourist steamers.

The following notes have been contributed by a Canadian resident in Jamaica:

"The development of Canada into a continental state, and her rapid industrialization in the last two decades, promises to react upon the British West Indies in the farm of trade development and more intimate relationships. The present industrial world is nationalist and protectionist, and this phase tends to throw the scattered lands of the British Empire into each others' arms. Like every other industrial nation, Canada must have her climatic complement to which she can turn for the wealth of produce and material that a northern latitude denies her soil. And since trade must be reciprocal if it must live, Canada's products will continue to be drawn south to a greater extent; where she buys more, she will sell more. Industrial development breeds leisured classes, and therefore Canadian tourists and investors have been turning toward the Caribbean in increasing numbers. These visitors should continue to find their pleasure and profit under the British flag. In addition, from the Canadian commercial point of view, the British West Indies serve as an admirable bridge to the south, where the immense markets of South America offer an increasingly lucrative field to exploitation and enterprise. Trinidad is the entrepot to Venezuela, and Barbados lies across the fairway to Brazil. In the west, Jamaica is the first station on the ever shortening trade route to Peru and Chile and the Trans-Andine republics. Hence Canada really needs the British West Indies upon her map of affairs, and she can be trusted to consider the consolidation of her position upon British soil as a prime condition of her commercial programme."

IX.—EDUCATION.

After the question of finding favourable markets for the products of their fields, West Indians are chiefly interested in the subject of the education of their sons and daughters.

There are ten endowed Secondary Schools in Jamaica, and others run by public bodies and private venture.

Of the independent external examinations taken in the island, by far the most important are those of the London University, in Arts, Science and Theology. Students in associated colleges (of which St. Peter's College is one) may sit for the examination for the L.Th. of Durham University.

Other examinations are the Cambridge Local (one of which is taken as the examination for the Jamaica Scholarship for Boys), the joint Board of Oxford and Cambridge, the Associated Board of the Royal Academy and the Royal College of Music and the Royal Drawing Society.

As prizes for students of the secondary schools there is first in money value, the Rhodes scholarship (awarded partly on the Jamaica scholarship examination and partly on moral and physical qualities) of £300 per annum, tenable under Rhodes's will at Oxford for 3 years, which every third year is restricted to candidates educated entirely in Jamaica. Of the sixteen Rhodes scholars selected for Jamaica up to 1919 twelve played their part in the great war, and of these, three lost their lives. Next in order of value comes the Jamaica Scholarship (for boys) worth £250 per annum, tenable for three years, the blue ribbon of Jamaica education, and the Jamaica Scholarship for girls (£250 for 3 years).

Secondary Education in Jamaica at present suffers from a difficulty in obtaining efficient masters for the schools, due in great measure to the smallness of the salaries offered, in spite of the fact that Government aid has been recently accorded. The salaries are all the smaller when compared with the present increased cost of living and with the increased emoluments offered in England, and the absence of pensions which, however, will probably come in the near future, when it is hoped that men and women of good ability and training will be secured more readily than is at present the case.

Those who are engaged in instructing and moulding the characters of the rising generation would seem to be at least as worthy of consideration as those who make roads, keep order, or attend to the health of the community. Several of the good secondary schools have long waiting lists, which indicate that a good education for their children is increasingly appreciated by the people

of Jamaica, and also the fact that the cost of travelling to England is now very high.

The development of athletics in the secondary schools during recent years is noteworthy. Before 1902, though cricket and football were played and athletic sports held, there was a decided lack of organization. Of late years, thanks in great part to the introduction of Junior Cup cricket, the Martinez Football competition and the Olivier Shield and the Manning Cup, both for football, the donation of the Perkins Shield for miniature rifle shooting, the institution of the Inter-Scholastic Handicap Games and the Jamaica schools championship sports, all forms of sports are placed on a far more satisfactory footing in all the schools, and each of them has produced athletes who in some branch of sport could compete on equal terms with the best athletes of their own age in English public schools. Some of this development is undoubtedly due to the allotment to Jamaica of a Rhodes scholarship above alluded to; love of and success in sports forming an appreciable part of the necessary qualifications.

As evidences of a development in Jamaica of *esprit de corps* and love of one's alma mater that is typical of the best of English school life, may be mentioned the institution of school magazines and old pupils associations. Old boys and old girls associations do good work in keeping up an interest in their respective institutions.

Elementary educational affairs in Jamaica are still in a transition state. In the early days Government did little and the various churches much for education, with the result that most of the school-buildings belong to the various denominations, principally to the Church of England, the Baptists and the Wesleyans. The Government is assuming more control over the schools, and yet wishes to leave with the churches, aided by occasional grants, the onus of providing buildings, except in the case of newly established Government schools. This, some of the churches are unable, others unwilling to continue to bear. But those who clamour for compulsory education throughout the island and government ownership of all elementary schools would be amongst the first to cry out at the consequent increased taxation.

A man *primus inter pares* is the elementary schoolmaster. After serving probably an apprenticeship as pupil teachers in an elementary school, the students pass into a training college, and after two or three years become teachers and in a few cases rise to the rank of School Inspectors and even to a seat on the Board of Education.

In England the average man is barely aware of the existence of school inspectors. In the West Indies they play an important part in the social life. Each inspector has about seventy schools in his charge, every one of which he has to visit twice a year for the

MUNRO COLLEGE, ST. ELIZABETH

HAMPTON SCHOOL, ST. ELIZABETH

WOLMER'S SCHOOLS, KINGSTON

purpose of examination and inspection, riding or driving long distances for the purpose.

The present position of Elementary Education in Jamaica is indicated in the following table which gives figures from 1868 to 1920.

	No. of Schools.	First Class Schools.	Average Attendance.	Grants to Schools and Teachers (including Building.)	Average grant per unit of Average Attendance	Expenditure.	Percentage of Revenue expended on Education
1868	286	1	12,216	£2,980	4/11	£4,120	1.12
1878	617	54	29,679	£17,806	12/-	£21.302	3.95
1888	771	100	41,920	£24.895	11/11	£35,200	5.09
1898	913	160	58,059	£53.554	18/5	£69,388	10.25
1908	690	182	53,691	£46,314	17/3	£58.151	5.69
1918	696	294	63.172	£68,304	21/7	£84,569	8 04
1920	693		59,915	£93,830	31/-	£123,012	4.6

School fees were abolished by Law 31 of 1892, which made provision for the further development and improvement of the existing system of giving assistance out of public funds to elementary schools. Prior to 1892 considerable sums of money were expended by the denominations on their schools in addition to the Government grants.

Fifty-three years ago there were 286 public elementary schools in the island (one first class) and 12,216 pupils in average attendance. £2,980 was paid as a grant-in-aid to the schools and teachers. The total expenditure on Education was £4,120, trained masters being introduced for model schools. The expenditure was 1.12 per cent of the Island Revenue. The population was then 54 per cent of the present population.

For 1920 the corresponding figures are 693 schools (294 first class when last marked), 59,915 pupils in average attendance and the grant-in-aid £68,304.

It is seen that there has been a great advance in the efficiency of the schools and in the average attendance, and the grant-in-aid is multiplied by nearly 30. The total expenditure of Education has risen to £123,012, or 5.2 per cent of the Island Revenue.

A Commission appointed in 1897 recommended that elementary schools found to be unnecessary should be closed and that no new school recognised by Government should be denominational. The recommendation was carried into effect and the number of schools was greatly reduced. The present number (693) will be de-

creased rather than increased by the further establishment of Government schools which will serve two or three neighbouring districts, and a better qualified staff of teachers will be available for employment in the larger schools at a lower cost than that of the separate schools. There are 107 Government schools (in Government or rented buildings), 565 voluntary, 19 undenominational and five special schools for East Indian children.

In 1881 each inhabitant of Jamaica was taxed for the support of education one-half as much as an inhabitant of Barbados or Trinidad, one-third as much as an inhabitant of British Guiana, one-fourth as much as an inhabitant of England, and one-eighth as much as an American. Expense could not be reasonably pleaded against needful educational reform.

In the annual report of the Department for 1896-7 a table was given, showing the cost of primary education per child in average attendance: Jamaica, 15/-; Barbados, 17/-; Mauritius, £1 19/-; Demerara, £1 5/-; Trinidad, £1 15/-; Cape of Good Hope, £1 18/10.

The average grant per unit of average attendance had risen in 1918 to 21/7; in Barbados, the corresponding grant was slightly higher than 21/7; in British Guiana 33/8 or 56 per cent. higher than in Jamaica, and in Trinidad 37/2, 72 per cent higher than in Jamaica. In 1920 the average in Jamaica was slightly over 31/.

Parish and District School Boards, Teachers Associations, Ministers of Religion and other influential people are calling for higher educational opportunities for the children, by means of more infant departments, of continuation schools, of further areas of compulsory attendance in order that all the children within the eight years of school age (7 to 15) may be brought into the schools, and of medical care.

Recommendations on these lines have been made for many years past by the Jamaica Board of Education, which was established by the Government as an advisory Board in 1892.

England was warned fifty years ago that it was high time for her to begin to "educate her masters" and twenty years ago that it was not well "to teach her democracy to read unless she also taught it to think." The strong recommendation of the Commissioners, who reported upon the condition of the Jamaica Juvenile Population in 1879, in favour of the gradual introduction of a system of compulsory education, supported by the almost unanimous opinion in favour of such a system expressed by witnesses from all parts of the island, calls still (over forty years later) for serious consideration. The average number of scholars on books is 92,176; this number should be larger by (say) 70,000.

Compulsory attendance of children in school, which had for some years past been authorized by the statutes and was in practice in the Leeward Islands, was in 1911 started in Jamaica—in King-

ston, Lucea, Falmouth and Port Royal. Hitherto lack of funds has barred its further extension, but it is shortly intended to add eleven more centres. It is to be regretted that not even one centre a year was added from the date of inception.

The check on rapid reform lies in the fact that the general revenue does not prove equal to the demands made upon it, and the country has not made up its mind what proportion of revenue it can afford to allot to the vital services of Health and Education. Probably no country ever does this. When a larger revenue is raised or a larger proportion is allotted to education, a more advanced policy can be adopted, leading not only to a larger but also to a more advantageous expenditure.

The Code Schedules have recently been thoroughly revised and the teaching is becoming more practical. Increased attention is given to the development in the pupils of the power of expressing their thoughts orally and in writing. Progress is being made slowly in the introduction of a manual side into the activities of the schools. Objections made by parents to school garden work have to a large extent disappeared.

Steady work is being done in the four Training Colleges. Sixty students are being trained as schoolmasters at the expense of the Government and the Mico Trustees in the Mico Training College. Half-a-dozen men are received for a two years' course from British Guiana, by arrangement with the Government of that Colony. The College is locally managed by a Board of Directors.

The Shortwood Training College (established in 1885) is maintained at Government expense for 36 women students. It is under a Board of Directors who admit also a number of girls to be trained in domestic work. Women students are also received from British Guiana on the same terms as men at the Mico College.

Provision is made by Government for a payment to the managers of certain voluntary Training Colleges for a specified number of resident students under training, and of an additional £10 for every student who passes the yearly examination.

Under this provision 25 women students are trained at Bethlehem in the Santa Cruz Mountains, a Moravian College (originally opened at Bethabara in 1861 and placed on the Government list of voluntary training colleges in 1885) and six women students at St. Joseph's College (Roman Catholic) in Kingston.

The Government Technical, Commercial and Continuation School in Kingston is instructing some 240 day pupils, 606 technical pupils from the Kingston schools and 10 Trade Scholars (immediately prior to their apprenticeship). The Head Master was the pioneer of manual training in the island, and he visits the various school woodwork-centres in the country twice a year.

The Kingston Government Infant School, which was in abeyance for some years, has now been reopened.

The Government and voluntary Industrial Schools serve a useful purpose as also does the Reformatory Branch of the St. Catherine District Prison for boys. A similar institution is, unfortunately, needed for girls. Good work is also done at the Alpha Cottage, Kingston; at Belmont Orphanage, Stony Hill; at Broughton Industrial Home, Manchester; at Bellevue Home in St. Elizabeth; and at the Happy Grove Industrial School in Portland.

In various parts of the island there are troops of Baden Powell Boy Scouts and Girl Guides. Boys and Girls Clubs are needed in greater number; there are some who do well.

Thrift has been encouraged in the schools, and it is likely to be further inculcated with the opportunities now afforded by the Government Savings Bank.

Teachers Associations meet regularly throughout the island and give much attention to the craft and social sides of their professional work. As is perhaps to be expected the Executive of the Jamaica Union of Teachers finds itself occupied with the administrative and economic side rather than the craft side of the teachers' problems. One, at least, of the Citizens Associations includes in its aims the helping forward of the best interests of the schools and scholars within its range. It has set an example worthy of being followed.

Many people are impatient of the slowness of progress though they are aware that great and real progress has been made during recent years.

Local interest in the schools, a matter of considerable importance, is increasing. The newspapers often tell of some neighbourly help given to a school, a prize offered, a Union Jack presented, a flagstaff, a good meal in times of scarcity to the children of necessitous parents.

If forward movement must be considered only from year to year in the light of a varying annual revenue, the broad view that the full training of the children in the schools will lead in time to the lessening of the repressive and ineffective training which is carried on in reformatories and prisons at a higher cost and at the periods of life appropriate to these doleful institutions, can receive little more than academic support.

A scheme of grading—the schools on average attendance, and the teachers on their qualifications, length of service and proved ability with abolition of the mark system—was passed by the Legislative Council in 1920 and took effect as from 1st January of that year, and modifications reducing the number of grades from 8 to 5 were introduced in 1921, in each case with a very considerable increase in expenditure on teachers' salaries. It is to be hoped that increased power will be accompanied by increased sense of responsibility.

X.—PROFESSIONAL AND SOCIAL LIFE.

Government.—The present system of government, the result of compromises is, as we have seen, undoubtedly hybrid in character. There is at the present moment a desire expressed on the part of many for an extension of power to the people, but, if all the circumstances of the case are taken into account, it will probably be found that no very drastic changes will be necessary.

The Privy Council consists of the senior military officer in the island, the colonial secretary, the attorney-general, and other persons not to exceed eight in number, nominated by the crown. At present there are only five nominated members.

The Legislative Council consists of the Governor (president), five *ex officio* members (the senior military officer for the time being in command of His Majesty's regular troops in Jamaica, the colonial secretary, the attorney-general, the director of public works, and the collector-general); ten members nominated by the crown, and fourteen members elected by the people, one for each parish; Port Royal being for this purpose merged into Kingston since 1895. Elected members must be resident in, or be possessed of, or interested in real estate of the annual value of £150, in the parish they represent. But some think that this restriction is unnecessary and should be abolished.

Those qualified as voters are British male subjects of twenty-one years of age, being occupiers as tenants or owners of house property, paying taxes to the extent of ten shillings, or owning property and paying taxes to the extent of thirty shillings; or being in receipt of an annual salary of £50 and upwards. By recent enactment women possessing certain qualifications are entitled to vote.

The Legislative Council lasts for five years, and sits when summoned by the governor, until recently for two or three months in the early part of the year. Latterly sessions have been both longer and more frequent. During the great war its life was extended abnormally. No bills involving questions of finance are passed if opposed by nine or more elected members. The President has only a casting vote. Bills passed by the council and assented to by the governor become law; but the king may disallow any law within two years of its passing.

The laws of Jamaica respecting marriage, land, industry and the like differ in no appreciable degree from those of England. As they now stand, the laws of the island are the common law of England as modified by British legislation prior to the conquest, and by such acts of Parliament passed between that time and 1815, as were during that interval recognized and acted on by the courts, and by such acts of the local legislature, whether passed before or

since 1815, as have not been disallowed by the crown. On the whole, it may be said that English law prevails (at least in its main features) in the island. Though English acts of Parliament passed since 1728 have not, of themselves, the force of law in the island, a large proportion of those suitable to the condition and circumstances of the place have been adopted, with or without modification, by the local legislature. These, together with numerous laws of a local or administrative character passed by the Governor and Council, constitute the "Acts and Laws of Jamaica." An example of special local legislation is the Emigrants Protection Law, passed in 1902 in view of the exodus of labourers to Panama, which imposed a tax of 25 shillings a head on those who could not show that there was no risk of their having to be repatriated at any time at the cost of the colony.

There is a system of poor relief. The administration of the funds is vested in the parochial boards subject to a body called the Board of Supervision, instituted on the Scotch model.

Officials and professional men form a much more important and prominent proportion of the community in the West Indies than they do at home. In England a man may serve the State all his life and never come under public notice. In the West Indies his every action is noted. His salary is freely commented on, his holidays duly chronicled, his promotions recorded, and his personality freely criticised. With the exception of the planters, government servants and professional men are almost the only cultured members of any community; for there are so few residents of leisure that they may be almost disregarded. The only residents in any district are those who are there of necessity; engaged in agriculture or trade, the affairs of the church, education, medicine, law, or the collection of taxes, with an occasional retired civil, naval or military officer who, from doing duty in the West Indies, has come to adopt it as a residence.

Church.—That the church in the early days of the West Indies did not achieve more than she did was not due to lack of opportunity. At the time of settlement or conquest, steps were taken to provide for the religious welfare of the colonists—the very divisions of the islands being named after saints—George, Andrew, David, and Patrick predominating. They had all the field to plough, but the ploughmen, not very numerous, were not always zealous, and the implements were poor. The root of failure lay in the fact that the clergy, some of whom were, it is to be feared, ill-fitted to their calling, were asked to do too much, and also that there was no organization and no supervision.

In 1830, Phillippo, a Baptist minister in Jamaica, pointed out that the parishes of St. Elizabeth, Manchester and Clarendon were, with the exception of a small Moravian settlement and one solitary church of England clergyman, without preaching of the gospel;

and five years later the Bahamas with thirteen parishes had but two clergymen.

The Baptist missionaries came out fully imbued with the anti-slavery spirit. It was they who, in face of much unfair opposition, first felt and expressed as a body the sentiment that the negro was a man and a brother, to be treated as an equal; and they set the example of sympathy for the negro race, the expression of which has placed England to-day, in the forefront of nations dealing with the black races. Over-zealous they were in many cases, and did much harm, but the fact remains that they and the Wesleyans were honest in their conviction, and, in the cause which they had at heart, suffered persecutions and many injustices, even to imprisonment: many churchmen, it is to be feared, thinking with Hawker that the nether millstone was softer than a sectary's soul. But churchmen, led by the late Archbishop Nuttall, in the latter part of the nineteenth century, made up for the intolerance which had characterized their attitude to the dissenters in the early days.

The Church of England woke from its lethargy, and did her best to make up leeway, and soon took her proper place as the leading body in religious and educational advance. It may fairly be said that the brightest day which dawned on her, was that which saw her immediate disestablishment, and disendowment by a slow process, which recently completely came into effect on the death of the last State-paid minister. This has had the effect of making the church dependent on her own resources, except for the aid which she from time to time receives from religious societies in England, and history will ever record with appreciation the marvellous work of organization, alike in religion and education, which Archbishop Nuttall performed from 1880 to 1916 during which period he was Bishop of Jamaïca.

The West Indian Wesleyans tried a few years ago to run independently of the parent church, but they had to give up the attempt, and go back into leading strings; and they and the other denominations are still dependent on the authorities at home for direction and funds.

In Jamaica, there are about one thousand churches, chapels, and mission stations for religious worship; the chief of which belong to the Church of England, the Baptists, the Wesleyans, the Presbyterians, the Roman Catholics and the Moravians. These and other religious denominations have, with the aid of Government grants, maintained for years a large number of schools; and have done in the past and are doing in the present, a very great deal for the advancement, both social and intellectual, of the native population of the island.

The principal denominations are represented on the Board of Education, which advises the Government on matters concerning Elementary Education, and although Jamaica is not quite free

from denominational jealousies, the various ministers of religion work well together for the common weal in matters educational. The West Indian minister of to-day, be his denomination what it may, finds plenty of work to be done. He has on a Sunday to conduct services not only in his church, if it be a country one, but in a number of mission stations as well, often having to ride long distances to reach them; an early communion here, a morning service there, with a celebration following and an evening service in a third place, to say nothing of Sunday School, interviewing parishioners in the vestry, and, it may be, meetings of church committee, and he has to take refreshment when he best can. During the week, though not so rushed, he has plenty of work to do, visiting the sick, enquiring into cases, and granting doles of relief in the case of deserving ones, and superintending one or more elementary schools under his charge.

Literature.—There have been many literary societies formed at one time or another in Kingston and other towns. One of Jamaica's candid friends, writing in 1808, said, "Literature is little cultivated in Jamaica, nor is reading a very general favourite amusement," and he goes on to complain that people chiefly read ephemeral novels. Though reading can hardly yet be called "a very general favourite amusement" in the island, it is taking hold of the people of Kingston, and there are evidences that it is spreading throughout the country districts; in this movement the press of the island is playing no small part. Though a very large proportion of the books imported by the book-sellers are modern fiction, the works circulated in the island are (as a whole) healthy in tone; and the excellent "Colonial Libraries" of London publishers some years ago took the place of American piracies. The "penny dreadful" is, its is to be feared, not unknown among certain classes, but there is evidence that this is losing ground before the influence of books of a more wholesome character: and libraries have been formed in connection with some of the elementary schools. The Institute of Jamaica has a general library of upwards of 21,000 volumes, including 5,600 in the West India Reference Library, and a membership of over 2,100. In addition there are about fifty branch institutions and literary societies and elementary school teachers associations in the country parts connected with it, to which boxes of books specially selected are sent.

Medicine.—In the so-called palmy days, every estate had its own medical man to see to the health of the slaves, in the same way as men trained in the diseases of horses and cattle were put in charge of the four-footed stock. Emancipation naturally robbed the negro of free medical advice. In 1833 there were 200 qualified practitioners in Jamaica, in 1861 there were only 50. Then was evolved a system of District Medical Officers, whereby medical

men were subsidized to live within a given district and treat all the poor gratuitously, and the other inhabitants at a fixed scale. There are now 45 district medical officers in the colony, in addition to 115 medical practitioners not connected with the Government service.

In 1794 a Kingston Medical Society was formed, but by 1832 it was defunct, to be succeeded in 1877 by a branch of the British Medical Association, the first colonial offshoot of the parent society. A College of Physicians and Surgeons of Jamaica, established in 1833, was disallowed at home.

Hygiene.—Although Hygeia is by no means worshipped as assiduously in the West Indies as is desirable, there has been a marked improvement in later years. A commission, which was appointed in 1910 to investigate and take measures to remedy the conditions that give rise to malaria in different parts of the island, did good medical missionary work by preparing the minds of uninformed persons for the reception of the recently passed public health law. A survey of the chief malaria districts throughout the island was made, and steps were taken to combat the evil. Retrenchment laid her heavy hand on this useful work, but it is hoped that brighter days are in store. The Hookworm disease is being combated by the Rockefeller Foundation, and there is no fear of infection for the European.

Improvements in the dwellings of the natives has been a thing to be desired "from time," as one says in Jamaica. For natives of the temperate zone, however, health is easier to attain and maintain than in the indoor life of England.

The lessons that one learns from the history of the many societies which existed in Jamaica during the past century, is that voluntary institutions founded at moments of temporary enthusiasm were dependent in great measure on the activity and pecuniary and moral support of a few prominent individuals, and that so soon as the support and motive power were lost, the societies declined: but there is evidence of much greater stability at the present in regard to such matters.

Philanthropy.—Of societies which make for an elevating influence on the community there are the Upward and Onward Society, for work amongst young girls; the Society for the Protection of Animals in Jamaica, which is doing its best to counteract some of the cruelty to animals, often thoughtless, which disgraces the peasantry; the Women's Self Help Society, founded by Lady Musgrave in 1877 in order to help industrious women to help themselves, by working up the natural products of the island; the Kingston Charity Organization Society, which aims at placing charitable relief on a sound basis; the Jamaica Nurses Union which facilitates communication between nurses and medical men and patients requiring their services; the Mothers Union; the Kingston Sailors

Home, and the Sailors Rest, the one the complement of the other, the one for the stranded sailor, the other founded to keep the transient sailor from undesirable associates; the Discharged Prisoners Aid Society, the Social Purity Association, and last, and most modern of all, the Women's Social Service Club and the Child's Saving League. There are also in the island, lodges of Freemasons and various other friendly societies.

The English Council of the Young Men's Christian Association (Y.M.C.A.) has established the Association in Jamaica with headquarters in Kingston and a branch at Alley. And efforts are now being made to establish the Young Women's Christian Association also.

Music.—Local musical entertainments generally take the form of concerts, sacred and secular, given in aid of churches or charities, at which most of the performers are amateurs. Performances of light opera are also sometimes given by amateurs with the same object; and in 1904 for the first time in the history of the West Indies the oratorio, "The Messiah," was produced (selections only having previously been given) with a chorus of local amateurs and an orchestra.

There are competent teachers of both vocal and instrumental music in Kingston and in the country.

Dramatic companies from England and companies of Italian Opera, *en route* to or from Cuba and South America, occasionally give performances in Kingston where there is a commodious theatre. In 1921 a very successful Church Pageant was given in Kingston.

In April, 1908, the Examinations of the Associated Board of the Royal Academy of Music and the Royal College of Music were first held in Jamaica. They have been held annually since. In 1921 there were seven centres with an aggregate of 486 candidates (including those who took theory papers.)

Fine Arts.—The Fine Arts have fared badly in Jamaica. The English are not an art-loving people by nature, and most of those who came to the island appear to have been more than ordinarily utilitarian. Modern dilettantism usually takes the form of admiration (not always without an eye to the "main chance") of old furniture and silver and Sheffield plate; and a Sheraton table would probably be held in higher honour than the *Madonna di San Sisto*. Little heed was paid in the past to architecture as a fine art; and many of the reinforced concrete buildings erected after the earthquake of 1907 show that beauty was sacrificed to strength and economy. From time to time a few works of prominent English sculptors, notably Bacon, have been commissioned for the island, but they have received but scant appreciation; while there

is not a painting of the first rank in the colony and but few of the second or third†. The most interesting painting in the island is Pine's picture of *Rodney with his officers aboard the Formidable* in the history gallery in the Institute of Jamaica.

Law.—In every district there is a resident magistrate, who holds his court once a week or oftener in the town, and goes to various out stations, ten or twelve miles away at intervals. He deals with minor cases but has to commit graver ones to the circuit court, which is presided over by one or other of the three supreme court judges.

The bar, with here and there an Englishman, is composed chiefly of creoles, who have been educated and called to the bar in England—the most catholic in the world—where many are called but to depart to practise in their own countries forming part of the British empire.

There are 104 solicitors on the roll. Proposals are made from time to time to amalgamate the two branches of the legal profession.

There are 160 constabulary stations in the island, and a force of 1,058 officers and regular constables, supplemented by 1,055 district constables. Some of the inspectors are from the British Isles. Special Constables have recently been added to the force.

During 1920-21 sixteen persons were charged and seven were convicted of murder. There were 3,715 prosecutions for predial larceny being an increase of 269 over the previous year. A prison farm is attached to the General Penitentiary and another to the District Prison at Spanish Town. The daily average of prisoners during 1920 was 1819.

Military.—There are at present troops in Jamaica consisting of a company of Royal Artillery and Royal Engineers, two companies of an English foot regiment, and headquarters and four companies of the West India Regiment with the necessary contingents of medical, ordinance and army service corps. The rank and file of the West India Regiment, natives of the West India Islands, are in great measure recruited in Jamaica and Barbados. These men have frequently proved their efficiency and bravery in action; and one gained the Victoria Cross.

Of local forces there are a company of Jamaica Militia Artillery, a corps of scouts, the Jamaica Reserve Regiment which was raised for purposes of defence during the war; as was the Kingston Infantry Volunteers. Comparisons are not infrequently made between the soldier of the West India Regiment and the native police constable, much to the detriment of the latter. But it is in a large

†There are four monuments by Bacon in Spanish Town—the Rodney memorial and three others in the cathedral; three in Kingston parish church and one in Montego Bay church.

measure a matter of feeding. The soldier gets fair pay, and good rations willy nilly. It remains to be seen whether the constable, now that he is in receipt of better pay, will feed himself better; but it is well known that a negro does not of a choice select strength-giving food, and as likely as not he may fritter some of his extra pay away on less useful objects than beef.

Naval.—At Port Royal the dockyard was closed after an existence of practically two and a half centuries, but it is hoped that it may be re-opened ere long. The North American and West Indies squadron visits the port once a year, and men-of-war of other nations, especially of the United States, are not infrequently seen in Kingston's magnificent harbour.

Taxes.—Amongst the men of education that is of necessity in a district which, as we have seen, contains clergy of various denominations, schoolmasters, a school inspector, an agricultural instructor, one or possibly more doctors, a magistrate, probably a lawyer, and a police inspector—is the tax-collector, unfortunately for him the least popular of the lot.

There is no doubt that indirect taxation suits the negro best. Even when the *ad valorem* duty is as high as one-sixth (as in Jamaica) the people grumble but pay it, not minding because they get something for their money, even though it be less than it was when the duty was lower. But what they object to pay is the house, land and road taxes, for which they get no return, visible at the moment, and to this has now been added an income tax. But it is to be hoped that, when fully understood, they will realize the justice of the tax if it is not raised too high.

Though previously there were two, and sometimes three, daily papers in Kingston, at present there is unfortunately but one, in addition to a number of periodicals issued at less frequent intervals. Many of these compare more than favourably with similar publications in towns of the same population in other parts of the empire.

Jamaica entered the postal union in 1877, and it now possesses all the chief postal and telegraph facilities, both foreign and inland, enjoyed in European countries. A letter used to be sent to any part of the island for one penny, but the war caused this to be raised to 1½d. There is a house-to-house delivery in Kingston and the suburbs only, letters and parcels in other places having to be fetched from the nearest post-office. The colony has joined in the British Imperial penny-post scheme.

Home Life.—At the time when servants were thought to be cheap, because they were slaves, a house servant was kept for every separate operation in the household, and this has had its effect in making the servant of to-day consider that he or she is to do nothing not specifically within the four corners of his or her duty.

But taking things all round, householders in the West Indies may consider themselves very fortunate as regards domestic service, especially if they compare themselves with those in England or America. With sufficient patience to overlook repeated small blunders, the negro servant is usually bearable and sometimes a source of pleasure.

When tourist friends go into raptures over a very commonplace garden, one realizes that familiarity has bred contempt for a glorious profusion of flowering trees, shrubs, and plants—poinciana-regia, lignum-vitae, ebony, cordia, spathodia, cassia, poinsettia, lagerstroemia, ixora, brownea, tinnea, set off by croton, aralia, cocos, coleuses, acalpha and other beautiful foliages, to say nothing of roses in profusion, month in month out, and a wealth of palms of various kinds, and flowering creepers such as bougainvillea, stephanotis, beaumontia, thunbergia, any one of which would be considered a distinct feature in an English garden. And if one feels at times that one would gladly barter them all for one bank of primroses it is due rather to fond memories of the home land than lack of appreciation of one's adopted country.

Jamaica has a large variety of fruits, but to many English persons they do not readily appeal owing to the unfamiliarity of their flavour. Amongst them are grapefruit, shaddock, oranges, blackberries, avocado pears, breadfruit, bananas, sweet-cups, rose-apples, star apples, sapodillas, cherimoyas, granadillas, custard-apples and gineps. Various opinions are expressed about the breadfruit, some like it extremely and others not at all. The seeds of the gineps if roasted are somewhat similar to chestnuts. English apples and wild strawberries are grown in the hills to some extent. There is a great variety of mangoes, and the peasantry live on them during the mango season. The Number Eleven has long been considered the best table mango, but some more recently imported, and known locally as East Indian mangoes, surpass it in quality and flavour. Naseberries are highly appreciated by some and are called the Jamaica medlar; they are very sweet.

Cashew-nuts, which grow outside at the end of the cashew fruit, are roasted and eaten with salt; in fact they take the place of almonds and form a pleasing adjunct to a meal.

There is a good variety of vegetables although they are not so plentiful as fruit; and the cooks often use rice instead. On a creole table it is not uncommon to see six or seven vegetables and breadkind (as they term breadfruit, yam, coco and sweet potatoes). The cho-cho is a very useful vegetable; and the people are very partial to it, it being as they say, cooling. Made into puddings, with a judicious addition of sugar and limejuice, it so much resembles apple as to deceive one into believing one is eating apple-pudding.

The peasantry put the green plantain and also the green banana in their soups or eat them with their salt fish. Green roasted plantains are *de rigueur* with the planter's cheese. Pumpkin is a favourite dish among the natives.

XI.—SPORTS AND PASTIMES.

Horse-racing.—Foremost amongst English sports must be placed horse-racing, and this has existed in Jamaica and some of the other islands ever since their British occupation; in Jamaica chiefly because here the climate and country are best suited for horse-breeding, and some of the best equine blood of England runs in the veins of weedy looking Jamaica horses and ponies. Mr. Fortescue, in his "History of the 17th Lancers," while telling the story of the Maroon war, says: "British dragoons have rarely been better mounted than were these detachments in Jamaica. The island is famous for its horses: and every trooper rode a thoroughbred." In the second quarter of the nineteenth century there was at Pepper, in St. Elizabeth, *the* horse-breeding parish of the island, one of the largest breeding studs then extant in the world, with an average of one hundred brood mares and seven imported English sires. At one time the December race meeting of Kingston was the event of the year for the people of that city. When the course was removed and the meeting made a gate one, under the then recently formed Jamaica Jockey Club, it became more select; but recently racing on the city's race-course has been revived. Some twenty different horses compete at the best meetings—a few imported, some bred from imported sires, some from creole stock. There are other country meetings and also smaller meetings, Dull Day races as they are sometimes called, held in various parts of the island. But the advent of the motor car has here, as elsewhere, seriously interfered with the breeding of horses.

Polo.—Polo, which suffered an eclipse during the war, was started again in 1920, and is now played, chiefly at Up-Park Camp, and in St. Ann.

Cricket.—There are several cricket clubs in Kingston, and a cup is eagerly fought for, while distance alone prevents some of the country teams from competing. Most of the larger schools have cricket clubs, and inter-school matches are played, in addition to some of the stronger teams playing in the Junior Cup competition. There is perhaps, in some cases, a tendency to place the winning of a match above the playing the game. Cricket is as a rule confined to towns where organization is easier; and the cricket that is seen on every village green in England is only now and again met with in Jamaica.

Lawn-tennis.—Lawn-tennis has perhaps caught on better in the West Indies than any other game. In most of the colonies the making of a good turf court is comparatively easy, and, in addition

to the clubs to be met with in most towns and the courts attached to hotels, many houses possess one, and some two courts. The climate is suitable for the game, which, except during the rainy season, is rarely marred by wet weather. For many years an annual competition has taken place in the winter months for a single challenge cup; and lately the leading clubs of the island have formed themselves into an association (affiliated to the Lawn-Tennis Association of England), and organized a yearly competition for a challenge cup. At inter-club matches many a keenly contested match is witnessed by members and their friends.

Croquet.—Croquet, as a scientific game, has only come to the fore of late years, since its renaissance in England; and it is played by a few keen players, rather than by the many.

Golf.—It was but natural that the British delight in golf should find its echo in the British West Indies, where many fair links may be found, and numberless devotees, and swarthy caddies in abundance. There are matches from time to time.

Rifle-shooting.—Rifle clubs exist amongst the militia, and police and a few civilians, and recently the movement for introducing them into schools has been taken up in Jamaica. The Swettenham rifle cup, presented for competition amongst West Indian colonies has been held several times by Jamaica. West Indian riflemen have acquitted themselves well at Wimbledon and Bisley, from time to time during the past thirty years.

Football.—Football is played by a few civil and military clubs and at the secondary schools, which compete for a challenge cup and shield.

Athletic sports are held at some of the schools, which join in an annual interscholastic competition. In Kingston also there is an annual open meeting. The West Indian boy, as a rule, does not go for a walk for walking's sake, though now and then some of them will form small parties and make expeditions into the hills for a day or so. Bicycling forms a feature at some athletic sports meetings.

The Royal Jamaica Yacht Club has its headquarters in Kingston and holds a regatta annually, usually during the visit of the British fleet.

Shooting.—Shooting in Jamaica is confined (from the nature of the fauna) to the native wild pigeons (blue-pigeon, bald-pate, ring-tail, white-wing, pea-dove, white-belly, and partridge) and the migratory duck teal, snipe, and butter bird (or ortolan). The season varies for different birds, and in Jamaica, in different parishes, it lasts broadly speaking from August to October, though shooting

is to be obtained until the end of February. The best time of day for shooting depends upon the time of year. At the opening (from 1st August to 31st October) the evening or afternoon; from say 4 p.m. to dusk is the best, although one gets fair sport in the early morning as well.

The dull or off season (say from 31st October to 31st January) depends entirely on the weather. If there has not been much rain the pigeon shooting remains good to the 30th November, but if there have been good rains the pigeons stop flying and remain in the hills, while the snipe (which afford the best sport) and the various species of duck come in. The snipe can be shot from early morning right through the day until dusk, and are to be found on commons and woodlands, and old cane-pieces where the rain water has settled and the land become slightly swampy.

The end (from 1st February to 1st March) is purely and simply guinea-corn shooting, and all the varieties of pigeon are to be found feeding thereon. The shooting is from break of day to 10.30 a.m., and is probably the most difficult, as the birds (especially the white-wing) shut their wings when some hundreds of yards away from the corn, and then swoop right down at an enormous pace, giving the sportsman not only a smaller object to hit, but going at such speed that it is equalled by no other known sporting bird, not even woodcock or driven partridge or grouse.

Fishing.—Both sea and river fishing* is to be had in most of the colonies. Unlike his small cousin the herring, the tarpon, of whose life history little is known, is an inhabitant of warm waters. He is best known in Florida, Mexico and Texas, whither many go for the purpose of the sport which he supplies. He is also found on the coast, rivers and landlocked lagoons of the Caribbean; and in Jamaica, though not affording such good sport as in Florida, he often attracts fishermen both local and visiting. The heaviest fish weighed in Florida turned the scale at 210 lbs., large fish being caught with good tackle by both boys and ladies. In Jamaica the largest caught at Black River with a rod and line, weighed 126 lbs., one of 153 lbs. weight having however, been caught in a net. Recently Mr. Mitchell-Hedges caught at Black River, amongst many other big fish, a red snapper weighing 102¼lbs. Tarpon are usually found off Port Royal, in Black River and in Milk River.

Of river fish there are three kinds of mullet; calipeva, hog-nosed mullet, averaging about 8 lbs., and mountain mullet (which rarely exceeds half a pound,) drummer, sandfish or mudfish, which all offer good sport. Snook, running up to 20 lbs., are taken at the mouths of rivers.

Visitors to the island who wish to fish should bring the following tackle: light trout rod with reel and fine dressed silk line: casting or spinning rod with casting reel and lines; sea

*Fishermen will find valuable hints in Strachan's "With Rod and Line in Jamaica."

rod with reel to hold 200 yards of strong line. A supply of gut casts, hooks and phantom minnows are useful as many of the fish here take artificial bait readily.

Of indoor pastimes, billiards is played relatively as much as in England, at clubs, hotels or in private houses; here and there an American table being seen next to an English one. As in England, bridge has supplanted whist at the card-table.

Chess is played in a few houses. Jamaica some years ago lost its problem-composer, Mackenzie, of world-wide reputation.

Sketching.—Of recent years one or two artists have visited the island and made numerous paintings and drawings. But, on the whole, it may be said that Jamaica is not a painter's country. The scenery is often too panoramic in character, and the difficulties of painting out of doors are considerable. On the other hand, many charming studies of negro life may be made, full of interest and colour.

The following notes on sketching in Jamaica, written by an amateur, will prove of interest to those who have sketch-books and canvases to bring to the Isle of Springs:

"To the artistic observer who struggles to reproduce on either canvas or paper the grandeur and vivid colouring of the hill scenery or the humble mud-huts which dot the landscape, the same difficulty always presents itself, *i.e.,*—Not enough distance! Why? Because the atmosphere is so crystal clear that it not only insists upon the artist seeing things he would much rather not see and which it is bad for his picture for him to see; but it even calls to his attention individual trees miles away; and so deceptive is the distance in such an atmosphere that he feels he could stretch out his hand and pluck trees from the landscape. By those who realise that *simplicity* is one of the chief features of a good sketch, it can be easily seen what a drawback this is; but what an opening for a genius!—what an opening for such a one who feels that he *likes* a difficulty to overcome, that, without lying to himself and others, he can, as nearly as truth and art will allow him, make a *picture* of such a landscape. He who would paint a *panorama* let him come to Jamaica, for this is the island of panoramas! Figures—human, dusky figures, what could be more appropriate in contrast to such sunshine and clearness than these dark faces and half-gaudily clothed bodies, what could appeal to the artist more than a group of little naked 'pickinnies' basking in the sunshine by some babbling brook marvelling at their own reflection! Then, there are the borrowed coolies, truly borrowed but not inappropriately set; they, too, looked splendid in their suppleness and nakedness, bright wraps and silver ornaments, all sparkling in the sunshine. It is at sundown or at dawn that the artist gets his best chances in Jamaica, but he needs much to be an impressionist, or ere he has fully grasped the beauty of his picture it has vanished."

Photography.—The following notes on photography have been contributed by Mr. Noel de Montagnac: "To the professional no less than to the amateur and especially to the colour photographer, Jamaica offers excellent opportunities for both pictorial and experimental work. One, however, of the several interesting and important features in connection with local photography, which the visitor soon learns to appreciate, is that the difference between the actinic value of the light in England, in the summer, to which he is accustomed, and the light here, in Jamaica, is by no means as great as the blinding glare and heat of the tropical day would lead him to believe it was. As a matter of fact, the difference is very little. For example, in England, on a bright summer's day, for, say, a snap with a kodak of the new military hospital at Richmond (on the site of the old Star and Garter Hotel), the exposure would be, at U.S. 16 (F. 16) about one-sixteenth of a second, while in Jamaica, for a snap of the public buildings in Kingston, which has a similar sort of foreground, photographically speaking, the exposure would be, with the same kodak and the same stop, about one-twenty-fifth of a second. Again, for a snap of a group on the beach at Brighton, Sussex, the exposure, with the same stop and film, would be about one-fiftieth of a second. For a snap of a similar beach scene at the Palisadoes or anywhere along the Kingston Harbour front, the exposure would be one-seventy-fifth of a second, that is to say, in both instances, only about a quarter less in Jamaica than in England. In London, with its more or less smoky atmosphere, even on a bright summer's day ,the difference would obviously be more marked; but it would not be as great as to necessitate very special calculations in Jamaica bearing in mind the latitude of the kodak film—the speed of which ranges from about H. and D. 180 to 225—and modern plates generally.

Where, however, the difference between the light in England and the light in Jamaica is very appreciable, is, if one can so express it, in its *quality*. The light in Kingston, in the heat of the day, is viciously hard and pointed, making it a matter of some difficulty to obtain soft results, especially when the subject is already full of sharp contrasts. A similar difficulty is experienced in the mountains where the view, filled with dark shadows and heavy masses, is not infrequently punctured by piercing rays of light like those from a powerful arc lamp.

The ideal time for photographing, certainly on the plains, is between the hours of 3.30 and 5.30 of an afternoon, and the perfect interval is, perhaps, between 4.15 and 4.45. For certain pictures the time chosen would, of course, be in the early morning, in the confusion of the mists and when the light has a sort of neutral quality, that is to say, when it is neither as white and hard as it is during the day, nor as warm, golden and diffused as it is in the afternoon at the hours named. In the case of colour sunset studies,

up to 7.30 is possible for certain effects; although one has to bear in mind the dramatic swiftness with which the twilight fails, and the possibility of soon finding oneself in the dark with the exposure cut short, so to speak, in the middle of it.

For these and other reasons the ordinary amateur cannot do better than stick (if the colloquialism be permitted) to his kodak film, but if he fancies plates, they should unquestionably be orthochromatic and backed. The more experienced and the discriminating worker will not set out from home without a lens hood and a filter; and his equipment should also include a tank, as local dark rooms are not easily obtained, or made.

The approximate time given above is, of course, for exposures made during the day. After about three o'clock in the afternoon, allowance must be made, and increasingly so, for the weakening light."

XII.—NATURAL HISTORY

To those whose hobby is natural history, be it geology, zoology, or botany, especially botany, the West Indies offer a veritable happy hunting ground; and many an amateur botanist has returned home with added knowledge and increased specimens.

Though Jamaica is by no means a *terra incognita* there are many sections of natural history in which useful work can be done and material gathered even in a short stay. The claims of the island in this respect are appreciated more and more by visitors each year; students and professors, as well as dilettante collectors, making lengthened expeditions during vacation time for the purpose of gaining an experience of thoroughly tropical conditions, in the varied, attractive and accessible forms here obtainable.

Botany.—The island is most favourably situated for the botanist. The following notes on Jamaica as a field for the Botanist were contributed to the previous edition by the late Mr. William Harris, F.L.S., Government Botanist and Superintendent of Public Gardens.

"The Flora of Jamaica is very varied and beautiful. In the shallow waters around the coast marine algae in great variety are abundant; fungi of many kinds are to be found practically everywhere but are most plentiful in damp situations; at the higher altitudes lichens are found on almost every tree-trunk and on moist rocks and banks; in damp woods in the hills mosses and their allies are exceedingly abundant and in infinite variety.

The ferns and fern-allies number upwards of five hundred species, from filmy ferns with delicate fronds like fine lace-work, to majestic tree ferns with trunks up to fifty feet in height. It is estimated that four-fifths of the species of ferns found in Jamaica grow in the damp, cool woods of the Blue Mountain region.

There are upwards of three thousand species of flowering plants known and described. Of these the orchids alone number nearly two hundred species belonging to sixty-one genera. Only about one-fourth of the orchids are of horticultural value, the remainder being often exceedingly beautiful, but small plants of botanical interest only. Orchids are found everywhere, from the coast to the summits of the highest mountains, but the majority are found on trees and on rocks at mid-elevations.

Of sedges there are nearly one hundred species and of grasses upwards of two hundred species. The former are found mainly in marshy situations, whilst, the grasses are found everywhere, the greater number of species, however, occurring at low and mid-elevations.

There are about twelve species of palms, not including the coco-nut which is not indigenous but is extensively cultivated. Palms have been called the "Princes" of the Vegetable Kingdom. They, more than any other tree, contribute to give that peculiar and imposing character to the vegetation of tropical regions. Fully-grown specimens of the Bull-Thatch *(Sabal jamaicensis, Becc.)* or the Cabbage Palm (*Oreodoxa oleracea,* Mart.) or the Gru-gru (*Acrocomia lasiospatha,* Mart.) are very striking features in the landscape.

Many of the indigenous trees not only produce very valuable timber but they are also very beautiful when in bloom. The lignum-vitae (*Guaiacum officinale,* Linn.) with its masses of blue, or sometimes white flowers and orange-yellow fruits is very attractive. The Mountain Pride (*Spathelia sorbifolia,* L.), is one of the most showy trees when in blossom. During the summer months it is a conspicuous object on rocky hillsides, rising with a straight unbranched stem to a height of twenty to fifty feet, crowned with a circle of pinnate leaves three to four feet in length, and adorned with a magnificent plume of rosy-purple flowers arranged in panicles which are several feet long. After flowering and seeding the tree dies, but as numerous seedlings spring up there is always a succession of flowering specimens.

The Scarlet Cordia (*Cordia Sebestena,* Jacq.), a small tree found along the coast, produces cymes of scarlet flowers which remind one of scarlet geraniums (*Pelargoniums*) ; it is most attractive and showy. The Spanish Elm (*Cordia gerascanthoides,* H.B.K.) is a large and valuable timber tree, and when covered with its beautiful white flowers it never fails to attract attention. Clammy Cherry, (*Cordia Collococea,* Linn.) is quite a common tree at low elevations; it produces small white flowers; when laden with its translucent scarlet berries it is particularly ornamental. The Wild Tamarind (*Pithecolobium arboreum,* Urb.), is a timber tree with dark-green, fern-like foliage, heads of white flowers, and twisted, bright scarlet pods and black seeds, and is strikingly handsome. The Coratoes, of which there are several recognized species, are noble plants and are magnificent ornaments on the lower limestone hills during the early summer. Humming birds are very fond of the nectar secreted in the flowers, and a dozen or more of three species of these lovely birds, with numerous bees and other insects, may be seen round the flowering-pole of a Coratoe. The May Pole, or Coratoe, (*Agave sobolifera,* Salm.), with its thick fleshy leaves, and tall pole which branches towards the summit and produces great numbers of bright-yellow flowers, is very abundant and much admired.

It would be easy to enumerate dozens of equally beautiful flowering trees and plants if space permitted; they are found everywhere from the sea-coast to the summits of the highest mountains.

If ferns, the orchids, the palms and the flowering trees are all in their way very attractive, so also are a great many of the shrubs, the climbers and the humble roadside plants.

The Ipomoeas, in numerous colours, that grow on fences or climb over shrubs and flower during the winter months are very charming. The Jamaica Forget-me-not (*Browallia demissa,* Linn.) with flowers of various shades of violet-blue or white; the Sorrel (*Oxalis Martiana,* Zucc.), with its tri-foliolate leaves, and long-stalked cymes of rose-lilac flowers; the Turkey Blossom (*Tribulus cistoides,* Linn.), which grows in abundance in arid places near the coast and produces its beautiful butter-cup-like flowers in great profusion; the charming *Achimenes pulchella,* Hitchc., which forms carpets of scarlet on damp banks and rocks in certain districts during the winter months is a beautiful little plant.

These are just a few of the familiar but attractive roadside plants. A volume might be written about them, and then the subject would not be exhausted.

The plants of the Flora occupy several distinct zones and these may be roughly defined as follows:

1. *Halophytes,* or plants which grow within the influence of salt water, such as the Mangroves (*Rhizopora, Avicennia, Laguncularia*).

2. *Xerophytes,* or plants which can subsist in arid places round the coast, such as the Cacti, Borrichia arborescens, several species of *Heliotropium, Prosopis, Agave, Thespesia, Cordia Sebestena,* etc.

3. Swamp Plants, such as the Marsh Fern (*Acrostichum aureum*) Bulrush (*Typha*), Reed Grass (*Phragmites*), various coarse sedges, etc.

4. Aquatics such as the Water Lily (*Nymphaea*), Water Hyacinth (*ichhornia*), Water Lettuce (*Pistia*), *Echinodorus rostratus,* several species of *Sagittaria* and *Potamogeton,* etc.

Tropical Zone, between 500 and 1,500 feet altitude, occupied by vegetation that requires a comparatively high temperature and a considerable amount of moisture.

Sub-temperate Zone, between 2,000 and 4,000 feet altitude.

Temperate Zone, from 4,000 feet altitude, where the atmosphere is always comparatively cool and usually very moist, especially the northern wooded slopes.

The various zones gradually merge into each other. The differences in temperature at the various altitudes are appreciable, but shade and moisture are more important factors in influencing the distribution of indigenous species. Many plants that grow at high altitudes may also be found in heavy woodland at lower elevations where moisture and other conditions favourable to their growth obtain. Some species are able to adapt themselves to circumstances and are widely-spread, being found practically everywhere

from sea-level to the summits of the highest mountains, but a great many are confined to very limited areas in certain favourable localities and are met with nowhere else. For instance, two species of *Hernandia* are known to occur in Jamaica; one is confined to humid districts in the eastern end of the island whilst the other grows under similar conditions but is known only from the extreme western districts. Many similar examples might be given. Whilst there is a general resemblance in the Flora of Mount Diablo in St. Catherine, Bull Head in Clarendon, the Cockpit Country in Trelawny and Dolphin Head in Hanover and Westmoreland, each region has produced numerous species which are peculiar to it.

More attention has been paid during recent years to the Cockpit Country than to any of the other regions named. This is an elevated, ruggedly broken plateau of honey-combed limestone from 1,500 to over 2,000 feet above sea-level. It covers a very extensive area and owing to the absence of roads is most difficult to explore. The rainfall is heavy, probably over 120 inches per annum, but it is carried away in underground streams. The whole surface is densely clothed with valuable hard-wooded timber, and the undergrowth consists of shrubs and herbaceous plants a great many of which have proved to be new to science, and many others had not previously been recorded for Jamaica, whilst some others were old species that had not been collected in Jamaica since the time of Swartz, that is over one hundred and thirty years ago. The rediscovery of some of the long-lost species of Swartz is of much greater interest than the discovery of new species. Very large areas of the regions named, and of other regions, for example, the John Crow Mountains in the eastern end of the island, remain to be explored, as it has not been possible to devote more than a few days at a time at irregular intervals to this work.

Every locality should, if possible, be visited several times during the year, and at each visit plants will be found in flower or in fruit that were not in condition for collecting during the previous visit. Frequently too, after abnormal weather conditions, such as a severe drought, flood rains, or a hurricane, trees that may never have been noticed in flower before will be found blossoming freely. There is still an enormous amount of work to be done before it can be said that our knowledge of the Flora of Jamaica is complete, or nearly so.

For the student in any branch of botanical science no better field than Jamaica could be selected. In the hills of the interior and in the Blue Mountains the climate is excellent, and students from northern climes may work outside all day, except during rain, without experiencing any ill effects. They must be prepared to rough it to some extent and to live the simple life. The entire absence of poisonous snakes and the lack of large scorpions and centipedes render the densest tropical jungles in Jamaica perfectly

safe and dispel the lurking fears which must continually be entertained by the insect collector in most tropical countries."

Entomology.—In spite of the great wealth of insects in Jamaica, comparatively little is known regarding them, and there remain vast opportunities for their collection and study, as well as for observations relating to species which are of economic importance. Considerable areas of land are devoted to the cultivation of coffee, cocoa, and bananas, and the common occurrence of many economic trees and plants both native and introduced, offers facilities for the study of numerous tropical insect pests of prime importance.

Even the visitor who does not care to enquire into the details of insect life cannot fail to be interested in the bizarre tropical species which force themselves upon his attention in the rural districts. Along the roads, some of the most noticeable are the termites, or "white ants," which live in immense colonies and construct large brown nests in the trees, often several feet in diameter. In localities where these occur, the trunks and branches of many trees are lined by the dark brown, covered galleries which these insects build from the nests to the source of their food supply. In the higher hills, a small black ant constructs similar nests which may attain a diameter of more than a foot and contain literally thousands of ants.

The following notes have been contributed by Mr. C. C. Gowdey, Government Entomologist:

"The economic and systematic study of the insects of Jamaica is carried out by the Government Entomologist of the Department of Agriculture at the Government Laboratory, Hope, where is to be seen a representative collection of the insects of the island.

Jamaica shares with a few other parts of the Neotropical region, and with South Africa, Australia, Sumatra, Malay and New Britain the distinction of being the home of one species of that primitive member of insects, *Peripatus,* from which it is generally regarded that all other insects were evolved. The only part of the island that they are known to occur by the writer is in the vicinity of Bath, St. Thomas. They require a moist atmosphere and though they possess eyes, the only function of these appears to be to avoid light. These slug-like insects are to be found beneath the bark of rotten stumps of trees in the crevices of rocks, and beneath stones. Our species, *P. jamaicensis,* is viviparous. The male deposits the spermatophores indiscriminately on any part of the body of the female, the spermatozoa free themselves from the spermatophore, penetrate the body wall and traverse the tissues until the ovary is reached. In all species of *Peripatus* the young are fully formed at birth and differ from the adults only in size and colour.

With regard to the beetles, although the order is well represented, there are few that would attract the amateur from the point of view of their size or coloration. Among the Longicorns there are a few pretty and moderately large species, such as the large Prionid, *Sternodontes damicornis,* and the pretty Lamiid, *Ptychodus trilineatus.* Ranking with the Papilio, *P. homerus,* from the viewpoint of the professional collector, is the large beetle, *Dynastes hercules,* which is also a rare species. Even he who is not a stranger to the tropics is struck by the large number of fire-flies, or Lampyrid beetles, of the genera *Photinus* and *Pygolampis* that are to be seen almost any night soon after sunset. Of these the largest is *Photinus pallens,* confined to the hills and hardly ever taken on the plains. Another light-producing beetle is the click-beetle, *Pyrophorus plagiophthalmus,* which is also very common in April and October, though more difficult to capture. This species possesses two luminous spots on the thorax. In the larval stage it is predaceous on the 'white grubs', which are such a serious pest of sugar cane.

The *Hymenoptera* are also well represented. This is particularly so in the case of the ants, bees, solitary and social wasps.

The *Rhynchota* (bugs) are well represented, but these do not usually appeal to the amateur. The family of scale insects is represented by about ninety species and includes some species that cause considerable loss to the agriculturist. The largest species of this order is the water bug, *Belostoma grandis,* which is often attracted to lights.

The *Diptera* (flies) include a large number of species that are a nuisance or harmful to man and animals. The midges (*Chironomids*) are represented by two species which are a great nuisance at dusk at certain seasons in certain localities; the mosquitoes by about thirty species, including the malarial transmitter, *Anopheles punctipes.* The principal animal-biters are ten species of Tabanids, one *Lyperosia* and one *Stomoxys.* Two species of "bot" flies also occur here, the larvae of which are occasionally found in the stomach of horsekind and cattle.

Of the *Orthoptera* the most striking are the Mantids and the green Locustid, *Neoconocephalus nigrolimbatus,* which very often come to lights. Cockroaches are represented by about twelve species, some of which are household pests. Some of the crickets rank high in economic importance, for they attack several of the truck crops.

The Dragonflies are represented by about fifty species. Several species may be seen darting over any body of water on a sunny day. The bodies of some of them are beautifully coloured—red, blue or green.

The ticks are represented by six species, one of which attacks fowls, another frogs, and the remainder domestic animals. In those sections of the country where cattle raising is the main industry,

these creatures are an awful pest, but since the introduction of dipping tanks they are being rapidly reduced. In those places where dipping is a regular practice, ticks are scarce and as a result there is marked improvement in the condition of the animals."

Butterflies.—Butterflies and other flower-loving insects may be seen visiting the blossoming plants which are always in evidence, and one is continually attracted by the cheerful hum of countless honey bees. These swarm among the blossoming logwood trees when the latter are in flower, collecting the nectar which they will transform into the matchless Jamaica Logwood honey. After diurnal insects have been stilled by the sudden onset of the tropical twilight, the air sparkles with fireflies which give way in turn to varied and many beautiful moths displaying their proverbial love of the candle-light and fluttering into illuminated dwellings till far into the night.

In spite of the perennially pleasant weather, insects appear in greater numbers at certain times, coincident with the increased abundance of flowering plants that occur after the periods of heavier rainfall.

The following notes on moths and butterflies have been contributed by Dr. F. W. Jackson.

"To visitors to Jamaica intent on an entomological collection, especially with reference to butterflies and moths, the following observations may be interesting. Anyone arriving in the island during the months of May, June and July must be struck with the numbers of *Pierids* flying about in company, also with the abundance of roadside butterflies, and the inference would be that Jamaica offers a good field for collecting. It is true that a good collection of butterflies can be made, but the number of species does not come up to the number found on the continent. Mr. W. J. Kaye, F.E.S., says that the number of species discovered in Jamaica up to the present amounts to about one hundred. But on the other hand, some of the species are very rare and very local, and the collector stands the chance of securing a species of great value, and possibly of one that has not hitherto been recorded.

Kingston and its neighbourhood, including the Long Mountain and the commons, offer a very good field for the collector, and half a dozen species of the pierids may be taken, as well as many of the ordinary roadside species, such as *Anartia Jatrophae, Junonia Genoveva, Colaenis Julia, Dione Vanillae,* etc.

Of the *Papilios, P. Polydamus* (*Jamaicensis*) occurs abundantly in the neighbourhood of Kingston being attracted to the flowering shrubs in the gardens. *P. Pelaus* may be caught on the Blue Mountain range, at Bath, and at Holly Mount. The other Jamaica *Papilios, P. Thoas, P. Thersites, P. Marcellinus (Sinon)* are to be found on the slopes of the Manchester, Santa Cruz, and

Mocho Mountain ranges, and generally in the hilly districts of the island. They fly high and wild, but are attracted to large masses of flowering shrubs such as Bougainvillea.

The ambition of any collector is to secure a specimen of the Monarch of Jamaica butterflies, *P. Homerus*. Much has been written about this butterfly, but it may be stated that it exists in small numbers, and inhabits the following locality. Take an area of which the Cuna-cuna pass and forest are the centre, the area to extend some miles on both the Bath and Portland sides. The labour involved in securing a specimen will be severe, as the gorges leading up to this high land form its flying ground, and except that the collector is helped by mule paths, etc., the ground is both precipitous and covered by jungle. Bath is considered a good locality for collecting *Victorina Steneles* and various skippers, as well as *P. Pelaus* may be caught there. The beautiful butterfly *Heliconius Charitonius,* the sole *Heliconius* of the island, may be found everywhere. It delights in sunny lanes and the outskirts of woods. *Gynoecia Dirce* is to be found in shady largely timbered groves, and *Hymenitis Diaphanus* may be observed 3,000 feet up and over in damp shady mountain paths.

Jamaica is rich in moths. The *Sphingid* family are strongly represented, and many fine specimens may be secured. They appear to be pretty well spread throughout the island. Much work may be done with moderate sized moths, the species of which are numerous everywhere. The best collecting time will be after the May and October rains. Some rare *Sphingid* species have been taken at Christmas time.

The fine butterfly *Aganisthos Orion,* distinguished from the continental form *Odius* by having a more truncate yellow marking, is distributed throughout the island, and may be found up to 300 feet but is partial to wooded hill sides of moderate elevation, and is reported to be plentiful in the neighbourhood of Port Morant. *P. Thoas* and *P. Thersites* are attracted to the blossoms of *Poinsettia* and wild *Bauhinia.* The *Lycaenids* frequent the flowers of Bitter-bush *(Eupatorium villosum).*

Enemies to butterflies and also to the collector are the many insectivorous birds, the foolish Petchary *(Myiarchus stolidus)* and allied species which sit on a bush near the one on which the butterflies are feeding, darting on and capturing a specimen which the collector is just about to strike at. Owing to their attacks, many of the butterflies are damaged so as to be worthless as specimens."

Shells.—In the island of Jamaica there are about 500 species of land and fresh water mollusca. In this respect the island is the richest in the world. Of this remarkable number of island mollusca but few are found elsewhere, almost the entire list being peculiar to the island itself. The more noteworthy genera are

Pleurodonte, Sagda, Thysanophora, Cepolis, Urocoptis, Colobostylus, Choanopoma, Tudora, Adamsiella. Neocyclotus. And several genera of the Helicinidae—one of which Stoastoma, is wholly confined to this particular island and numbers some seventy or eighty species. Probably the most striking feature of the fauna is the very large proportion of operculated land snails.

The Jamaica shells have been made the subject of special study by C. B. Adams, Chitty, Pilsbry, Henry Vendryes and many other naturalists who have made extensive collections in the island.

The Vendryes collection of Jamaica land shells, the result of many years work and which is generally recognized as the most complete one in existence, is now in the Institute of Jamaica.

Naturalists visiting the island for the purpose of obtaining land shells will find Bog Walk, Holly Mount, Mount Diavolo, Porus, and Mandeville, good regions for exploration, although the rarer forms must be searched for in the more inaccessible parts of the centre of the island. However, wherever limestone mountains and forests are found, land shells abound and there is scarcely any locality where some species at least may not be taken. In one of the cockpits near Mulgrave over 80 species were collected in a space not exceeding one acre in extent.

As many of the species are restricted in their distribution to a single valley or even to one side of a single mountain it is reasonable to suppose that many forms new to science yet remain to be discovered.

Amphibia and Reptilia.—In 1910 Professor Barbour published "Notes on the Herpetology of Jamaica." Revised information is contained in "An Annotated List of the Amphibia and Reptilia of Jamaica" by the same author, published in the "Handbook of Jamaica for 1922." In it he tells us that "the number of species inhabiting Jamaica is less than is known from Cuba, Haiti (and San Domingo) or Porto Rico; nevertheless, the number of endemic or peculiar species is large. Out of a total of thirty-two species, when four, which are probably fortuitous waifs are subtracted, it will be seen that of the remaining twenty-eight no less than twenty-four are confined to Jamaica."

The Little Bell Frog (*Eleuthrodactylus luteolus,* Gosse) occurs widespread throughout the island. The Whistling Frog (*Eleutherodactylus martinicensis,* Peters) lays its eggs in wild pines, and in the water conserved in these leafy bowls. The life history is quickly completed, the tiny adults hatching directly from the eggs. The Common Tree Frog (*Hyla brunnea,* Gosse) varies somewhat. It is abundant everywhere but especially on banana plants. The Giant Tree Frog (*Hyla lichenata,* Gosse) with its curious casque appears to be very rare.

Of the thirty-four species of Lizards found in Jamaica, no less than twenty-five are peculiar to the island.

The great brown "croaking lizard" (*Aristelliger praesignis,* Hallowell) is widespread and well known to all. It is quite harmless in spite of its reputation among the negroes. *Sphaerodactylus argus,* Gosse, is very common about Kingston and is easily distinguished by the many tiny ocelli on a reddish ground colour. Iguanas (*Cyclura collei,* Gray) still occur on Goat Island off Old Harbour and on the Cays about Montego Bay. The species is probably entirely extinct upon the main island. The eggs of Iguanas are always immediately sought out by the mongoose wherever they are introduced, and the big lizards are now very rare in those districts of Cuba and San Domingo to which the mongoose has spread.

The great Green Venus lizard (*Anolis garmani,* Steineger) as Gosse called it, is abundant and widespread.

The blind snake (*Typhlops lumbricalis,* Linne), commonly called the two-headed snake, which is common in Jamaica belongs to a wide varying species which is found from Cuba and the Bahamas through the West Indian chain to the Guianas. The large yellow snake (*Epicrates subflavus,* Stejner) is rarely met with but has lately been caught in St. Thomas and Trelawny.

The pond turtle (*Pseudemys palustris,* Gmelin)still occurs wherever there are suitable ponds or pools or sluggish waterways.

The common American crocodile (*Crocodilus acutus,* Cuvier) is found about the tidal estuaries of Jamaica. It is usually miscalled an alligator.

Mammals.—The following notes on Mammals have been contributed by Captain H. E. Anthony:—

"The fauna of Jamaica resembles that of each of the other Greater Antilles in that the mammal element is very poorly represented. There is only one indigenous land mammal living on the island to-day, with the exception of various species of bats.

This mammal is the so-called Indian Coney, *Geocapromys brownei,* and is a small, short-tailed animal almost as large as a cat. It is a rodent and has relatives on several other West Indian islands, notably Little Swan Island, Cuba, and the Plana Keys. This rodent has been a resident of the island for many thousands of years, as attested by the fact that its bones have been found fossil in ancient formation. It was an important article of diet with the Arawak Indians, and its remains are very commonly found in the kitchen middens of the Indians. Formerly ranging throughout most of the island, where it frequented the mountainous sections, it has in recent years become almost extinct, due to the introduction of the mongoose. A few are still to be found in secluded mountain areas.

A species of Rice Rat, *Oryzomys antillarum,* before the coming of the mongoose, was an abundant rodent resident of Jamaica and seemed to have had a widespread distribution. But little is known

Reference Nos.

1 Great Valley.
2 Cacoon Castle.
3 Mackfield.
4 Haughton Grove.
5 Struie.
6 Wiltshire.
7 Eden.
8 Catherine Hall.
9 Catherine Mount.
10 Fairfield.
11 Bloomsbury.
12 Mt. Charles.
13 Irwin.
14 Leogan.
15 Latium.
16 Salters Hill
17 Guilsbro.
18 Cinnamon Hill.
19 Content.
20 Kent.
21 Orange Valley
22 Dundee.
23 Phœnix.
24 Gales Valley.

Inches of Rainfall

30 to 35 | 40 t. 50 | 55 to 70 | 75 to 95 | 100 & over

Reference Nos.

25 Weston Favel.
26 Tilston.
27 Pembroke.
28 Green Park.
29 Holland Pen.
30 Lottery.
31 Cambridge.
32 Oxford.
33 Gibraltar.
34 Hyde.
35 Colchis Pen.
36 Georgia.
37 Vale Royal.
38 Arcadia.
39 Steelfield.
40 Bryan Castle.
41 Lancaster.
42 Brampton Bryan.
43 Hopewell.
44 Ewing's Caymanas.
45 Cherry Garden.
46 Hope Garden and Reservoir.
47 Newton.

MAP SHOWING THE AVERAGE RAINFALL OVER JAMAICA FOR THE YEAR.

of this rat since two or three specimens are all that were ever taken before the animal disappeared.

Although only the above two land mammals have been taken in Jamaica, the varieties of bats that make this island their home number about thirty and form a very interesting group. The species are greatly diversified in size, structure and habit. Some of the species are very small, but Jamaica is in the range of the largest of the New World bats, *Vampyrus spectrum,* an animal having a spread of wing of upwards of thirty inches. In spite of the sound of its scientific name this large bat is not a true vampire bat, and none of the blood sucking bats has ever been taken on the island. Most of the bats are insect eaters and do a great deal of good in devouring mosquitoes and other obnoxious and injurious insects, but several of them are fruit eaters and do not bear such good characters. Among the fruits that these bats eat may be mentioned the Naseberry, Sweetsop, Banana, Coco, Roseapple, and ripe Coffee, but numerous other varieties are on their diet. No inconsiderable amount of damage may be done by some of these bats, which are large and foregather in great numbers. The fish-eating bat, *Noctilio leporinus* is found in Jamaica. It is quite a large bat and has been noted catching its food at the surface of the water, dipping down while on the wing to catch up small aquatic forms. Most of the Jamaica bats are cave dwellers and wherever suitable caves are found the bats may be seen in vast numbers, many thousands being in the same cave. Others are fond of taking up quarters in human dwellings, where they crawl back of joints, under the shingles or wherever they can find a dark cranny. They thus may become a great nuisance as they have a very pronounced musky odour that can be detected for some considerable distance. The rarest of the Jamaica bats are tree dwellers and they are not often seen. They hang up for the day in some thick clump of leaves, under palm branches or in a hollow tree.

The scarcity of mammals in the West Indies has often been used in the past as an argument against the former connection of the islands with any part of the continental mainland, since had they been a part of the mainland, we should expect to find on them a great many of the same mammals as inhabit the continent. The presence of the few mammals that are found in the West Indies are accounted for, under this argument, by fortuitous means of distribution, such as life-rafts. However the force of this argument has been dulled somewhat in the past three or four years by the fact that many mammals, hitherto unsuspected, have been discovered as fossil on Porto Rico and Cuba. The list of resident land mammals in the West Indies has been very materially increased in this manner, and now the question arises, what part has Jamaica played in the times gone by. It appears very probable that all the Greater Antilles at one time in the past, somewhere in Tertiary times,

formed a continuous land mass, and so it may very well be that Jamaica has had, like her sister islands to the north, a much more extensive mammalian fauna which is now preserved as fossila and only awaits investigation to be brought to light.

As examples of mammals becoming resident in Jamaica through fortuitous methods of distribution may be mentioned the Mongoose, the Common or Norway Rat, the Black Rat, the Roof-Rat and the House Mouse. All have become very great pests and are responsible for a large annual loss through damage to crops as well as for some spreading of disease germs.

The most interesting of the marine mammals which may be found in Jamaica is the Manatee or Sea-cow. This animal, which is a true mammal, suckling its young at the breast, reaches quite a respectable size and is often caught by fishermen in their nets and the meat sold in the market. It may be seen about shallow harbours and estuaries. Old Harbour is one of its favourite feeding grounds where it resorts to eat the long marine grasses that cover the bottom. Here it may be seen when it comes to the surface to breathe, its queer square shaped head looking, from a distance, like a small keg afloat.

The coasts of Jamaica may also be visited occasionally by any of several species of seals, porpoises and whales.

The exploration conducted in Jamaica during 1919-1920, by the author under the auspices of the American Museum of Natural History, has revealed the fact that Jamaica has had a more extensive and varied fauna than it has to-day. A great mass of fossil remains was collected and taken north for study. It will be some time before a complete report can be made upon these bones because they are for the most part, embedded in hard limestone and must be carefully chiselled away before they may be examined closely. However, the preliminary investigations have disclosed the presence of five distinct forms or species, belonging to four different genera unlike any mammals living in the West Indies to-day.

Clidomys osborni was a very large, robust rodent, the size of a pig, while it had a relative living on the island, *Clidomys parvus* noticeably smaller. *Spirodontomys jamaicensis* was also a thickset rodent with teeth which show a peculiar spiral pattern in the crown. *Speoxenus cundalli,* named in honour of Mr. Frank Cundall of Kingston, was doubtless very similar to the foregoing species in external appearance, but possessed peculiar dentition quite distinct from the above. Finally the smallest of these rodents is called *Alterodon major,* distinguished by the fact that the crowns of its teeth were shaped like the cross section of a dumb-bell.

All of these rodents were ancient inhabitants on Jamaica and the age of the fossils may be fixed as certainly 5,000 years old, and a much more likely figure would be 50,000 to 100,000 years ago. They either dwelt in caves or repaired to them in times of storm

or when sick because it is in the caves that the remains have been found. Associated with these mammal bones were found remains of a very large land tortoise, many lizards, snakes, frogs, birds, etc. The age of this assemblage antedates human occupation of the island.

The traveller in Jamaica to-day, noting the absence of mammals in the forests and fields little suspects what these fossils tell us, namely, that could he step backward in time and pass through these same scenes he would see huge rat-like mammals, probably either tailless or with very short tails, and weighing, some of them, more than one hundred pounds. He would note certain varieties in the fields, others would be swimming in the streams, perfectly at home, while there is little doubt that some of the smaller would be spending their lives in the trees, like squirrels."

Birds.—The following notes have been contributed by a bird-loving friend in New England:—

"For a bird-loving visitor, the avifauna of Jamaica is of much interest, particularly if one comes, as I did, from frozen New England and in early March.

As we steamed along the southern shore of the island, in the afternoon haze of the Caribbean, I was rather disappointed in the number of seabirds observed, for while the Pedro and Morant Cays to the south are the resort of many, with the exception of a few Boobies and Sooty Terns, no other birds were observed till we neared Kingston Harbour and lay waiting for the pilot to be taken aboard.

Here we saw Laughing Gulls, and a few Royal Terns were winging their way about the harbour or perched upon the buoys that marked our channel. A flock of Cabot's Terns were fluttering screaming about a group of negro fishing boats, and farther up the harbour, as we steamed slowly along, were Brown Pelicans, singly or in twos or threes, flying across ahead of us, while overhead several Frigate Birds were circling magnificently.

On land the birds were a never ceasing source of delight. At the Myrtle Bank Hotel, the next morning, Mockingbirds were in full song amongst the shrubbery, and scavenging Turkey Vultures flapped lazily among the surrounding palms and neighbouring outbuildings, always with their naked red heads turning this way and that, as they searched for some choice bit of refuse; while later in the day flocks of Palm Swifts circled low among the tree-tops.

In the country about Kingston, there were along the road sides, or among the cattle in the neighbouring pastures, flocks of Tinkling Grackles and the characteristic Ani, or Savannah Blackbird, of the Cuckoo family, hebraic of countenance. In the gardens, or perhaps perched along some roadside telegraph wire, we occa-

sionally saw the Common Petchary, a flycatcher seeming very like our own Kingbird, until we heard its loud, harsh, discordant voice. While back among the foothills was the Foolish Petchary, looking a good deal like our Crested Flycatcher. In a clump of trees close by the roadside, we heard our first Banana Bird, easily identifying him by his song, quite different from our Baltimore Oriole, but an oriole's, nevertheless. And, along the walls and hedgerows were numerous Grass-Quits, Black-faced or Yellow-faced, diminutive members of the finch family that hereabouts seemed to take the place of the numerous species of sparrows so common with us at home.

Let every bird lover visit the Hope Gardens and watch the humming birds that are to be found there, along that straight entrance drive that is bordered with many kinds of cacti in full bloom at this season of the year. Here may be seen numbers of beautiful Long-tailed Hummers with long streamer tails and bright red bills. Here, also and very much in evidence were pugnacious Mango Hummers, much larger than the preceding species, and a few Vervian Humming-birds, tiniest of them all.* Here also we first made the acquaintance of that characteristic bird of Jamaica gardens, the Sugar Bird or Banana Quit, not much larger than a Hummer, and likewise probing the blossoms for his provender. Here also, though I have seen them at an elevation of 5,000 feet, was to be seen the Jamaica Tody, a tiny bird with a bright green back, a crimson throat and ridiculous red bill, looking for all the world like a cross between a humming bird and a king-fisher, and which strangely enough is said, like a king-fisher, to build its nest in a hole in the bank. Here also we were made to feel at home the very first day after our arrival, by encountering a flock of Warblers, old friends of ours, of which while only one is resident, nearly twenty species winter in Jamaica. We saw Yellow-throats, Redstarts, Parula Warblers, Palm Warblers, Black and White Warblers and Oven birds, and to our delight several Cape May Warblers, a rare bird in New England, but which winters commonly in Jamaica.

It would take too much time to tell in detail of all our delightful trips, and of all the interesting birds we saw during the few short weeks of our stay. Herons, and Gallinules, and Doves of several species that are always a delight to a northerner; then there were birds which we particularly wanted to see, but owing to lack of time, failed to find, such as Hill's Mocking-bird, the Jabbering Crow, the Parrots and that rare resident, the Arrow-head Warbler. In order to find all these birds, one must get into the woods and swamps, away from the travelled roads; but there are

*In 1921 there was a lengthy correspondence in "The Gleaner" endeavouring to prove that there is a species of humming bird smaller than the Vervain (Mellisuga Minima), but no specimen was produced in evidence.

many trips that can be made by the ordinary bird-loving tourist, without ever leaving one's car, that are replete with interest.

If one has the time, a trip should be taken through the length of the island to Montego Bay, stopping off at the Highlands of Mandeville for a few days en route. It was here in New England like surroundings that we first saw that only sparrow of the island, the "Savannah-bird,"—a sub-species of our Yellow-winged Sparrow. Another pleasant trip may be taken along the shore, around the eastern end of the Island to Port Antonio, returning by the beautiful road across the mountains, by way of the very interesting Castleton Gardens. At Port Antonio, one may perhaps, see another kind of humming-bird, a sub-species of the Long-tailed Hummer, but smaller and darker than the southern variety and with a black bill. An afternoon excursion to Bog Walk is of particular interest with its herons, gallinules and king-fishers along the stream; and let no one leave Jamaica without a visit to St. Ann's Bay, via the many tunnelled railroad over the mountains and across the lovely valley to Ewarton; thence by motor over the mountains through lovely scenery to Holly Mount. It was here that we became acquainted with the thrush of the Island, the Hopping Dick, the Black Becard and the Red-necked Coffee bird, while in the garden of the inn we became on intimate terms with the Blue Quit, a sturdy little tanager. Here too we saw the cunning little Ground Dove, so like those one sees in Florida,—the White-winged Dove, the Pea-Dove and the Larger Bald Pates.

Close at hand to Kingston one may drive to Newcastle, perched some 4,000 feet up in the air, on a shoulder of the mountain. Here the views are wonderful, and if one climbs on foot a mile or two further, and a thousand feet higher to the top of Catherine's Peak, and happens to catch it uncapped by clouds the panorama is marvellous. It was here that I first heard the clear, flute-like note of the Solitaire and felt well repaid for my trouble. Here also, just beneath the peak of the mountain, one may have the very unusual experience of walking a few hundred yards from the comparatively dry scrubby growth on the southerly side of the peak, around to the northerly side, where the clouds habitually hang and where the tree ferns grow in tropical luxuriance.

Of all the trips we took, however, that up on to the flanks of Blue Mountain, towering over 7,000 feet above Kingston, was to us the most delightful.

Leaving Kingston in the early morning we motored to Gordon Town, hidden among the foot-hills, and changing there to a Ford machine, with which to negotiate the numerous hairpin turns, zig-zagged over a wonderful scenic road, up the mountain and over Guava Ridge some 3,000 feet above the sea, and thence down to Mavis Bank in the valley of the Yallahs River. Here we found ponies which had been sent on ahead, and on these we journeyed

down across the wide, but now almost dry bed of the Yallahs River and up into the mountains beyond.

Often we could see Turkey Vultures soaring above the valleys beneath us, and once I had a never to be forgotten view of a Jamaica Red-tailed Hawk with the sunlight bright upon its back and tail, swinging in slow circles high above a valley, but a thousand feet or more beneath us.

We lunched, and smoked, and meditated upon a shoulder of the mountain, at a place where it seemed as though one could throw a stone on one side down into the headwaters of the Yallahs River, or, on the other into those of the Negro River, down whose valley we could look some fifteen miles to the blue Caribbean beyond. Here it seemed as if we could almost reach our hands up into the clouds that capped the great mountain above us, and partly enveloped that forest into which we had so hoped to penetrate, in search of the Jabbering Crow and the much desired Parrots. This was our last view of Jamaica, a fitting climax to a great vacation, for on the morrow we were to start for home."

The game birds are protected except during the shooting season. Many of the rarer birds are protected absolutely: special licenses being granted to scientific collectors.

Astronomy.—The following notes on "The Heavens as seen from Jamaica" have been contributed by Professor William H. Pickering of the Harvard Observatory at Mandeville:—

"To a person coming from the temperate zone the skies of the tropics are wonderfully clear. The moon appears much whiter than at home, and bright stars can actually be seen to set below a sea horizon. All of the brighter southern stars are visible from Jamaica, indeed there is only an extremely small section of the sky that is not visible here at one time of the year or another. The far-famed Southern Cross rises well above the horizon, and is seen to the best advantage in the early evening, during the spring months. Those coming in winter must sit up late in order to see it rise. Many people are disappointed in it because of its irregular form, and because the five stars are not all of equal brilliancy. Moreover the central star is situated far out of the centre, between two of the arms. Its beauty, however, does not lie in its shape, but in its concentration of bright stars. This is particularly the case, if disregarding the name and shape entirely, we combine with it the two very brilliant stars a little farther to the east, which are known as "the followers." There are more very bright stars in this small area of the sky than in any other area of similar size in the whole heavens. The brighter of the two followers, known as Alpha Centauri is interesting, as being not only the finest double star in the sky, but also as being much the nearest star to the Earth. Although it appears single to the naked eye, and requires

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a good spy-glass or a small telescope to separate it, it really consists of two suns about the size and brightness of our own, and revolving around one another in a period of eighty years. Their distance apart is more than twenty times that from the Earth to the Sun, yet together they appear as a single little point of light. Their distance from us is nearly 300,000 times that of the Sun.

There is another configuration of stars, also lying in the Milky Way, rising a few hours before the true Cross, and resembling it somewhat, although it is rather fainter and larger. This is known as the false cross, and is often mistaken for the true one. Half way between the two, we can see with the naked eye a faint blur of light. This is the great nebula eta Carinae. It is the brightest nebula in the whole heavens, and consists of a vast cloud of luminous gas, many thousands of millions of miles across. It is believed to be illuminated by electric discharges, something like our auroras.

For those who are in Jamaica during the summer season the Scorpion is one of the finest constellations in the sky, and its tail which is inconspicuous in the north, is here seen to be fully equal to the rest of its body in brilliancy. All of the other northern constellations are visible here, but in the late autumn and early winter we miss the familiar "Dipper" as it is called in America, or "Charles's Wain" as it is called in England. Without it, it is hard to find the Pole Star, which here appears less than half as high above the horizon as it does in the north. Sirius, the brightest star in the sky, appears even brighter than at home, and much higher up. Due south to it lies the second brightest star, never seen in the north, and so remote that if Sirius were carried to the same distance, we should not be able to see it at all, without a telescope. This great distant sun is known as Canopus, and if as near as our Sun it would be 50,000 times as bright.

Although in some parts of the island it rains nearly every day, there are others where it is cool and dry, and the records show that not infrequently a year passes without a single totally cloudy day, that is to say on every day of the year the Sun has shown for at least a few minutes. Clear nights are also the rule rather than the exception. In such a climate it is a pleasure to study the stars either with or without a telescope."

XIII.—NOTES FOR VISITORS.

Steamship Communication.—The best months in which to visit Jamaica are December, January, February and March, as they are the coolest, and also free from heavy rains, but with due precaution, the island may safely be visited at any time of the year.

The cessation of the sailing of the Direct Line boats to and from Bristol, the record run of which was 10 days 2 hours outward and 10 days to England, and the cessation of the Royal Mail passenger service robbed Jamaica of much easy access to the old country, which is now only supplied by Elders and Fyffe's boats which replaced the Direct Line and sail to and from Bristol, and, at times from Liverpool. Of late years service between Jamaica and the United States has been principally maintained by the United Fruit Company's boats which sail to and from New York, Boston, Baltimore and Philadelphia with considerable frequency: connecting up with Costa Rica and the Canal Zone. Pickford and Black's ships run once a fortnight between Jamaica and Halifax, and the latest means of communication to the Dominion is given by the ships of the Canadian Mercantile Marine which once in three weeks run from Halifax and Montreal via Nassau to Jamaica and on to British Honduras, returning the same way. The ships of the Canadian Pacific Railway also run at times to Jamaica.

The visitor to Jamaica in the winter months, whether in search of health or recreation, will commence to benefit directly he sets foot on shipboard, *en route* for southern seas. There is nothing pleasanter to the invalid or the over-worked man than to find the sun grow daily brighter and the air daily more balmy.

When he sights Jamaica he will feel with Moreau de Jonnes* who wrote on his first visit to the West Indies in 1795:

"One evening at sunset we sighted the West Indies. I don't believe there is anywhere else in the world so lovely a prospect. There, as far as eye can reach, are displayed verdant islands, forming a chain broken only by channels which allow the ocean billows to pour into the Gulf of Mexico. These isles emerge from the sea and tower to the clouds, in which their mountain-tops are lost.

On their sides lie the cultivated fields, rising in terraces and stopping short at the forest zone. Near the coast could be seen plantations of sugar-cane, with their reed-like foliage of tender and brilliant green. Higher the chequerwise coffee plantations, the flowers of which fill the air with perfume. At last come the forests,

*In 1858 Moreau de Jonnes published his "Adventures in Wars 1791-1805." A translation, by Brigadier-General A. J. Abdy, was published in 1920.

whose verdure seems blue at a distance. From the vast mass of ancient trees which clothe this region peaks of basalt and porphyry stand out, covered with herbage up to their pointed tops and crowned with stormy clouds."

Accommodation.—There are a few good hotels in the island, in and near Kingston, at Port Antonio, Mandeville, Moneague, at Holly Mount on Mount Diavolo, St. Ann's Bay, Montego Bay, and there are boarding houses in nearly all the towns of any size, varying in merit, where wholesome if not elaborate cooking may be obtained. In the appendix an indication is given where suitable accommodation can be found. The Jamaica Tourist Association in Kingston answers all enquiries of tourists as to such matters. On private enquiry may be found a few planters, penkeepers and others who are willing to take paying guests on suitable introduction, and for those who can afford the time this is perhaps the best way of learning to know the country and the people, under homelike conditions.

Stopping at hotels, where there are any, and lodging houses, the expense of board and lodging may be assumed roughly to be from £4 to £2 a day, if travelling quickly. In Jamaica, as elsewhere, longer sojourns mean a reduced daily expenditure.

The cost of living varies from £3 a day or more to about £3 a week or even less at some of the smaller lodging houses.

House rent will be found dearer than in England: the rent of houses in and near Kingston varying from £15 to £6 a month furnished, according to size and other advantages. In country parts, the charges for rent are lower.

In the hilly regions between 1,000 and 3,000 feet many charming resorts of great atmospheric purity and moderate warmth may be found in which Europeans flourish and live to a green old age.

The following figures from tables for the year 1899 will give some indication of the temperature and rainfall at varying altitudes and localities. They are the average for many years, through different periods.

Plane.	Elevation	Temperature.		Humidity.		Rainfall.
		Mean Annual	Mean Daily Range	7 a.m.	3 p.m.	Average.
	ft.	o	o	%	%	Ins,
Kingston	24	78.6	16.1	81	68	35.56
Stony Hill	1,400	74.1	17.4	91	80	78.04
Hill Gardens	4,900	62 2	11.5	80	88	106.40

No complete series of meteorological records is available for the south-western hills in Manchester and St. Elizabeth which are

drier than other hilly districts; but at Malvern, a popular health resort in the Santa Cruz Mountains, the average annual minimum is 63.5 degrees, average annual maximum 73 degrees.

Some of the most favourable sites in the island for residence by Europeans are to be found on the southern slope of the Blue Mountain range, and the high lands of the parishes of Manchester, St. Ann and St. Elizabeth; all these localities are perfectly free from malarious influences. It is obviously desirable that visitors, particularly if in search of health, should be guided in their choice of suitable districts by the local resident physicians.

Clothing.—Clothing of all kinds can be purchased in Jamaica at prices slightly higher than in England. A hat suitable to the tropics is requisite. Ordinary summer tweeds and light flannel or merino underclothing should be brought and may be worn all the year round. A light overcoat may be necessary for the few chilly days in the early months of the year and will prove useful when travelling at night at every season. For ladies, washable cotton dresses are recommended for ordinary wear. The glare and dust prevailing during periods of drought are apt to be trying to Europeans. Goggles for men and veils for ladies afford relief.

Invalids.—With reference to the classes of disease likely to derive benefit by residence in this climate, Dr. Grabham mentions chronic Bright's disease and early phthisis. He goes on to state. "It is remarkable how life is prolonged here in cases of the former disease, while in the dry hilly regions in the south-western districts of Manchester and St. Elizabeth, we have a climate characterised by an agreeable warmth, abundant sunshine, and total absence of fog, eminently adapted for the open air treatment of consumption. Patients unable to advance in convalescence after fevers and also cases of anaemia after acute diseases improve rapidly here. Lastly, there is no doubt that Jamaica is an ideal resort, not only for the average tourist and health-seeker, but for the tired and overworked, to whom complete intellectual rest is impossible and who seek distraction in fresh interests."

The visitor, if an invalid, will find himself in a new environment as regards food, and should exercise due caution in his dietary. It will be wise for him to act on medical advice in this respect. The water supply of the large towns is generally obtained from uncontaminated sources, and may be said to be pure and fit for drinking purposes. It is well, however, when travelling in the country and staying in country villages to boil or filter all drinking-water as a precautionary measure. The water or "milk" contained in the young coconut—obtainable almost everywhere in the island—is a refreshing drink and to all intents a sterile fluid which may be safely used. Jamaica is not without mosquitoes: they are rarely very numerous or troublesome, but in view of the accepted fact that

certain species of these insects are carriers, and probably the sole carriers, of malarial infection, it is advisable that mosquito-netting should always be used. Most of the lodging-houses and hotels are now provided, but for travelling about an ordinary tent form, capable of being packed in a small compass, will often insure a peaceful night.

Motoring.—The first motor car on record in Jamaica was an English-built "Rover" of 6 horse power, imported by Lt. H. C. Davenport, W.I.R., and registered on the 3rd April, 1906.

Mr. Ambrose W. E. Power imported three American-built "Locomobile" cars, registered in May 1906, and Mr. Ernest Nuttall was the first owner to run them on the road. In July of the same year the late Dr. J. Johnston, of Brown's Town, brought the first steam car to the island, a "Stanley", and this seems to have been the first car that was really of value and use, as the earlier ones were unable to negotiate the hills. Cars came in slowly. In 1912 there were about 250 in use, whereas on March 31, 1918, there were 1,389 registered as in active use, and to-day there are some 1,600 cars running. The types have improved with the progress in manufacture abroad, and 6 and 8 cylinder cars with all the refinements of their type are in use by garages who hire them out to travellers.

The country lends itself to this method of travel. There are 2,230 miles of main roads that may be described as good, the roads through the mountains are well graded and the surface is good, although the broken limestone which is thrown on the surface without being rolled in is very destructive on rubber tyres.

Petrol, oil and even tyres may be purchased in nearly every town of any size at garages or stores, and there are small workshops for making running repairs generally distributed.

Motor cars may now be hired in almost every town and at rates which are reasonable, having regard to the price of petrol, and running from 1/4 to 2/ per mile, according to locality and the class of car hired, and oil may be purchased and repairs effected at numerous towns.

The following notes, contributed by automobilists who have had practical experience of the roads of Jamaica, will prove of interest to those who contemplate making a tour of the island by means of a motor car.

Jamaica, although mountainous, is nevertheless quite well suited to the use of motor cars or automobiles. Some of the parochial roads, which are maintained locally, are in poor condition and steep in places, but the roads laid out and maintained by the government and known as main roads are a surprise to many visiting the island on account of their easy gradients and good condition. There is quite enough mileage of them for the use of the visiting automobilist. These main roads connect every important

town and point of interest in the island, excepting some of the mountain peaks which are reached only by bridle paths.

The gradients are seldom over 5 per cent, *i.e.*, one foot rise in 20, although occasionally 10 per cent. gradients are encountered. In the mountains these easy gradients are obtained by sharp curves which in places might more properly be termed zigzags. On the shore, however, the curves are as a rule moderate.

There are several fords, but these are usually passable in the months of January, February and March, excepting possibly Yallahs River in St. Thomas.

When considerable rain has fallen some of the roads furnish the conditions which contribute to skidding. A chain-grip or anti skidding device might prove desirable as a part of an automobilist's outfit.

Cycling.—Bicycles, both pedal and motor, are popular in the plains, but are not much used as a means of touring. Those who cannot, or do not wish to, afford the luxury of a private buggy or car can most readily see the island by a combination of train and mail-coach accommodation.

Livery.—There used to be livery stables in all towns of any importance. The hirer can arrange, before starting on his journey, either that the livery-stable keeper shall include the cost of feeding the driver and horses in the charge for hire or that he himself shall pay for it as he goes along. The cost of feeding the horses varies according to the current price of corn and grass in the district visited, but the horse has been supplanted by petrol, and in the main the motor car has superseded the buggy.

For the heart of the Blue Mountains and certain parts of the interior the saddle is the best means of conveyance, and Jamaica horses and ponies will be found to be both willing and able to perform long journeys if well cared for. On a hill trip especially, personal attention should be paid to the girths.

Cabs (called buses) are to be had in Kingston, Spanish Town, Old Harbour, Porus, Linstead, Ewarton, Mandeville and Montego Bay. The fare is 6d. within the limits of each town. Special arrangements are made for distances beyond. In Kingston cabs can be hired at 3/- per hour.

Tramcar.—An electric tram line (23 miles in extent) traverses the town of Kingston and the suburbs, going to Constant Spring, Papine and Rockfort. Payment is made per stage by tickets at a charge of 2d. It is two fares to either Constant Spring or Papine. From the latter a seat in a "bus" to Gordon Town can be obtained for a small sum.

Mail coaches, which carry passengers, run over a great part of the island.

Kingston.—Though lacking the romance of Port Royal and the Spanish association of Spanish Town, Kingston has been for many years now the centre of the political and commercial life of the colony, and, though hurricane, earthquake and fire have done much to rob it of its ancient houses, many historic associations linger in its streets. It was originally laid out after Port Royal had been destroyed by earthquake in 1692 by Colonel Christian Lilly, "Their Majesties Engineer-general." In Beeston, Beckford, Haywood, Lawes, Elletson, Elgin and Darling streets; in Manchester Square, in Nugent Lane, in Norman and Blake Roads, in Musgrave Avenue and lately in Olivier Place we have reminiscences of former governors. Barry Street recalls the original owner of the land on which the town stands. Of statues the principal are those to Lord Metcalfe (a former Governor, and later Governor-General of Canada,) and Queen Victoria, at either end of Lower King Street; Dr. Bowerbank, a philanthropist, in Upper King Street, and Edward Jordon, journalist and politician, in East Queen Street.

Kingston Parish Church, rebuilt after the earthquake of 1907, contains memorials to several men of note, Admiral Benbow; three by Bacon (to Malcolm Laing, Fortunatus Dwarris and John Wolmer ,founder of Wolmer's Schools), Edward Manning, a successful merchant, Rear-Admiral William Brown (Commander-in-chief on the station in 1813-14), Hector Mitchell (Mayor of Kingston, 1833-53), and Edward Jordon. In the graveyard is the tombstone of Janet Scott, sister to the well-known author of "Tom Cringle's Log." The Scotch Church, erected in 1814, contains the bust of the Rev. John Radcliffe, a former rector, by Sir Thomas Brock. The Roman Catholic Cathedral is a handsome post-earthquake building. Headquarters House, in Duke Street, for many years the military headquarters, and until recently the Colonial Secretary's Office, and still the home of the Legislative Council, is the finest old town house in Jamaica. It was originally known as Hibbert House from the name of its builder, Thomas Hibbert, one of Jamaica's merchant princes of the eighteenth century. The Institute of Jamaica, a post-earthquake building, contains a general library of some 20,000 volumes, a West India Reference Library of some 5,000 books, many of them very rare, and newspapers, the latter ranging, year by year, from 1780 till to-day; a History Gallery containing 240 portraits of persons celebrated in Jamaica History, including Pine's painting of "Rodney aboard the Formidable", and two interesting Maces from 1753 and 1787. In the earthquake-wrecked Museum are a collection of Arawak pottery and implements, the Sawkins collection of the geology of the island, a collection of Jamaica birds, and other examples of natural history. In the grounds is a small vivarium of native birds and conies.

On either side of lower King Street, in the centre of the city, are two ranges of Public Buildings, housing the Law Courts and several of the principal government departments. The architect, Sir Charles Nicholson, had practically carte blanche in selecting a site in the earthquake devastated city. The design is simple and on the whole suitable, but one cannot help feeling that a larger building placed in the centre of a square would have been more effective. The appearance of the town itself has gained much by the trees planted wherever possible, by Sir Sydney Olivier.

Amongst the most noteworthy of other public buildings in the city are the offices of the Royal Mail Company, the Colonial Bank, the Bank of Nova Scotia, the Royal Bank of Canada and the Myrtle Bank Hotel.

In 1802 Kingston was granted a corporation under the style of "The Mayor, Alderman and Common Council of the City and Parish of Kingston" and received a seal. In 1865 with the abandonment of representative government in Jamaica, Kingston ceased to be a corporate city: for a time it was controlled by a nominated municipal board; since 1885 its affairs have been administered by Mayor and City Council elected every three years, similar to the parochial boards in the other parishes; but even this power is now threatened with absorption.

Jamaica by Road.—There are several ways of seeing Jamaica. The most comfortable is to reside for a time in some centre, view its beauties and then pass on to fresh woods and pastures new. The most convenient centres are Kingston for the town and the plain of Liguanea, with trips to Castleton and the Blue Mountains; Port Antonio for the east end of the island; Moneague, for St. Ann; Mandeville for the centre of the island; and Montego Bay for the west end.

The main roads, about 2,230 miles in extent, which are under the control of the Public Works Department, encircle the island with several connections from north to south, as shown in the accompanying map. The parochial roads, which are maintained by the parochial boards, the principal of which are also shown, measure about 4,100 miles. On a small scale map, especially of a hilly country, it is impossible to give details.

The roads of the island are, on the whole, kept in good repair, so that travelling is, as a rule, easy and comfortable.

Commencing at Kingston and going easterly, the main road passes Vernon and Rodney's old watering place for ships, by Rockfort at Harbour Head, and Fort Nugent, first fortified against Du-Casse in 1694, recently reconstructed, to Bull Bay, where the Direct Cable lands. A main road branches off from the coast road at the 11th mile east from Kingston and passes by Llandewy, through the heart of the Blue Mountain coffee district, by Cedar Valley and Trinity Ville and Serge Island, to Morant Bay. A continuation of

KING STREET, KINGSTON, IN 1844

KING STREET, KINGSTON, IN 1922

this interior road goes from Serge Island down to Plantain Garden River Valley and Bath.

Continuing on the coast road one passes Albion, a very old sugar estate (whence Albion Sugar takes its name), Yallahs, where was one of the oldest churches in the island, to Morant Bay the scene of the Gordon rebellion of 1865. To the east are Stokes Hall and Stokesfield, the home of the Nevis Settlers under Luke Stokes in the seventeenth century. The land at Port Morant was the first which Sir Stamford Raffles saw, he having been born off the coast, the son of one of the then oldest captains of the West India trade out of the Port of London. An interior road goes from Morant Bay to Bath, (with its mineral spring of great value), and joins the main road near Holland Bay. A little further on is Manchioneal where Michael Scott resided for a time. Thence a picturesque road—with the almost untrodden John Crow Mountains on the left, which have been explored and described by Inspector Thomas in 1890* and Mr. Scoresby Routledge in 1921—takes one past the Blue Hole, which well deserves its name, to Port Antonio, an old Spanish settlement, which was established as the chief town of Portland when that parish was created in 1723. It has a double harbour, of which the western is one of the best in the island, and affords also good accommodation for bathing. Fort George, the old military barracks, is now used as a school.

There are few pleasanter ways of spending an afternoon in Jamaica than by going down the three miles or more from Unity Valley to Burlington on the Rio Grande.

The trip is taken on roughly constructed bamboo rafts, usually employed for carrying bananas to the sea at St. Margaret's Bay. A raised seat is tied on and serves for two or three passengers, and this raft, some 25 feet long by 5 feet wide, is propelled by a pole used, not as a punt pole is used in England, but like the paddle of a Rob Roy canoe, first one side and then the other.

The stream is, at times, very shallow, with here and there a natural weir, which requires careful management on the part of the boatmen.

Now the river is wider and deeper, and reminds one of Denham's description of the Thames near Windsor,

"Though deep, yet clear; though gentle, yet not dull;
Strong, without rage; without o'erflowing, full."

Now and then, if it were not for an occasional coco-nut tree or clump of bamboo, the steeply rising wooded slope would remind one of the Marlow Woods. Here and there one notices a group of riparian bathers; and now and again one passes a raft similar to one's own loaded with some forty or fifty bunches of bananas destined for transmission to England or America.

*In "Untrodden Jamaica."

Of mountain roads second only to that of Newcastle is the road from Port Antonio to Millbank, through Fellowship, Golden Vale, Windsor, Seaman's Valley (said to take its name from the distruction of a party of seamen by the Maroons), and Altamount the site of an unfortunate experiment in the formation of a white settlement—with the valley of the Rio Grande on the right, and beyond the Blue Mountain Range, rising more abruptly from the plain than it does from the south side; and on one's left the John Crow Mountains.

At Millbank, one finds oneself within easy reach of the Cuna-Cuna Pass which leads down to Bath; but here the buggy or motor car must be relinquished for the saddle or pedestrianism.

From Seaman's Valley the road to the left takes one to the historic spot of Moore Town, an ancient settlement of the Maroons, where their descendants may be seen to-day.

Turning west the coast road goes from Port Antonio, with its fine hotel, the resort of all good Americans, through some of the best banana land in the island, past the mouth of the well named Rio Grande, with a magnificent view up towards the mountains, Hope Bay and Buff Bay with an extinct volcano, to Annotto Bay. Here, the junction road connects the north-side with Kingston, passing through Castleton with its botanical gardens near which is Scott's Hall, a Maroon settlement, and Temple Hall, famous for its tobacco and the place where coffee was first cultivated in Jamaica, and affording a ride or drive with scenery of great beauty; the view from Stony Hill over the plain of Liguanea being both grand and panoramic in effect. At Halfway-Tree is one of the oldest churches in the island, with interesting monuments to James Lawes, one of the best pieces of iconic sculpture in the island, Zachary Bayly, Admiral Davers, General Villettes, and to Sir James Ferguson, who was killed in the earthquake of 1907, while in the churchyard are the tombs of Bishop Lipscomb and Archbishop Nuttall. The old brass chandelier dates from the year 1706.

From Annotto Bay the coast road passes some way inland through banana land to Port Maria, the centre of the north side banana trade. Oracabessa, Rio Novo (where Doyley defeated the Spanish in 1659) past White River, which divides St. Mary from St. Ann, to Ocho Rios. Here a branch of the great road from Spanish Town, through Linstead and Moneague to St. Ann's Bay comes from Moneague and connects the north and south sides of the island. The trip from Moneague—down the Fern Gully to Ocho Rios, along the coast past Dun's River Cove (an ideal spot for a picnic and bathing), Roaring River, the falls of which are famed for their beauty, to St. Ann's Bay is one of the most enjoyable in the island. But to see the Fern Gully in its full beauty one should walk or ride down it, as the hood of a buggy or motor car shuts out the tops of the sloping sides.

LOOKING UP THE RIO GRANDE FROM THE SEA

RAFTING ON THE RIO GRANDE

From Moneague the great interior road passes through Claremont, Brown's Town, a picturesque village with a fine church and the newly built Diocesan High School, Stewart Town, Clark's Town, where a branch road connects the great interior road with Falmouth.

The Dry Harbour caves, situated on Hopewell between Runaway Bay and Dry Harbour, are well worth a visit. The stalactites and stalagmites form most picturesque features—now recalling the Roman catacombs, now an early Gothic crypt. Here and there a shaft of light comes from above of surpassing beauty, and here and there the roots of the ficus hang down and crawl along the floor in a most surprising manner; but, perhaps, the most interesting feature is the "piano", a series of stalactites which when struck give out notes resembling those of tubular bells.

From Dry Harbour, a main road, through Brown's Town and Cave Valley, passing under Bull Head, the centre of the island, goes past Chapelton to May Pen, and connects the north and south sides of the island, through parts of which a branch railway line has been made.

From Stewart Town an interior road runs through the beautiful Queen of Spain's Valley to Montego Bay.

From this interior road near Stewart Town, a branch main road goes southward to Ulster Spring, where it connects with main roads from the south side of the island.

From Ocho Rios the coast road skirts the sea to St. Ann's Bay (where Columbus spent twelve weary months in 1503-4, probably at the mouth of the Draxhall River), through fine coconut groves, Runaway Bay, whence the last of the Spaniards left the island, Dry Harbour (where Columbus first landed when he discovered the island in 1494), Rio Bueno, Duncans and Falmouth, with its fine court-house, telling of a time when the town was of greater importance than it now is; past the celebrated Rose Hall, the home of Rosa Palmer, to Montego Bay, the scene of a great fire in 1798 and of the negro rebellion in 1831-2. Montego Bay was a very prosperous town in the days of high priced sugar and is making strenuous efforts to regain its prestige. In the church is the monument by Bacon to Rosa Palmer, the wife of John Palmer, custos of St. James. She was the grand-aunt of the wicked Mrs. Palmer of Rose Hall fame. Doctors Cove is a favourite resort for bathers. South-east of Montego Bay is the Cockpit country, difficult of access—the home of the Maroons, who were the cause of much trouble at the close of the eighteenth century.

From Montego Bay a road crosses the island, running past Montpelier to the Great River at Shettlewood, with its fine herd of Indian cattle, whence one branch, passing by Chester Castle and Newmarket, terminates at Black River, and another branch goes to Savanna-la-mar, passing by many of the best cattle pens in the island, as well as land suitable for the growing of tobacco.

The coast road from Montego Bay extends to Lucea, a town situated on a very picturesque bay. In the church is a monument by Flaxman to Sir Simon Clarke. Rusea's School owes its origin to the beneficence of a French refugee. From Lucea the main road crosses the island to Savanna-la-Mar, and a branch road runs round the coast through Green Island and Negril to Savanna-la-Mar. At Cornwall, nearby, Monk Lewis spent four months and did much for the amelioration of his slaves; and a little further afield are the Beckford properties of Fort William and Roaring River.

From Savanna-la-Mar, the capital of the county of Cornwall, in the neighbourhood of which are some of the best sugar lands in the island, the road follows the coast through Bluefields—where Gosse sojourned in 1844-46, and compiled his "Naturalist's Sojourn in Jamaica," and Banister Bay, where the Surinam Settlers landed, and where later some of the ill-fated Darien Settlers found a home—to Black River, a prosperous sea-port. From here a road goes inland through logwood plantations to Lacovia, with its logwood dye-works, whence there are two branch roads; one, passing over Bogue Hill and through Mile Gully, unites at Williamsfield with the other which passes over Spur Tree hill where a fine view southward is obtainable, and through to Mandeville, where will be found excellent hotel and boarding house accommodation and a nearer approach to English village life than elsewhere in the island, and pleasant rides and drives, the orange groves reminding one of Marvell's lines:—

> .... the eternal spring,
> Which here enamels everything.
>
> .... in shades the orange bright
> Like golden lamps in a green light.

Near by, at Grove Place, is the recently established government farm. The extensive Oxford Caves, near Balaclava are well worth a visit with their fine stalactites and stalagmites. In 1921 these caves yielded interesting remains of pre-historic mammal life alluded to in the chapter on Natural History. At Colyville is the wireless station in communication with the Admiralty. From Mandeville, Malvern is reached where is to be found probably the most excellent climate in the island.

Prominent amongst the undeveloped assets of Jamaica as a tourist resort is the Black River, with its winding course running some twenty or thirty miles through St. Elizabeth, from its source in a beautiful pool on Mexico estate near Balaclava, to its mouth at the town to which it gives its name. For some ten miles or so from its source it winds through rich pasture-lands, fringed by feathery bamboos, the dark-foliaged rose-apple and brightened by

the yellow-flower of the *Jussiaea suffruticosa* and the delicate *Polygonum acuminatum* till Appleton is reached where rice fields tell of coolie labourers. Again below the famed Magotty falls one can row through the picturesque village of Lacovia, the home of the logwood dye extract works, past Holland, with its famous bamboo walk, nearly a mile long, to the sea, with its wharves ladened with chipped logwood, waiting for export. On the plains of St. Elizabeth many of the best horses of Jamaica are bred.

The road from Mandeville runs east to Porus, Four Paths, May Pen, Old Harbour and Spanish Town, terminating at Kingston. Another road leads from Mandeville down Plowden's Hill through Milk River with its Bath, on into Vere, and then to Kingston.

At the Alley, in Vere, is to be found one of the oldest and most interesting churches in the island, dating from the earlier part of the eighteenth century, and one that has suffered less from earthquake, hurricane and "restoration" than any other. It contains interesting monuments to the Morants, Gales and Suttons. Peter Pindar was once its unworthy rector, the chief record of his tenure of office being a volume of "Persian Love Elegies." A few miles south of the Alley is Carlisle Bay, where the Jamaica Militia, under Beeston's control, successfully defended the island against a French attack from Hispaniola under DuCasse in 1694. In Vere are some of the best sugar estates in the island.

Old Harbour Bay, to the east, was visited by Columbus on his homeward way on his second voyage when he had discovered Jamaica. He there interviewed an Arawak Cacique of whom he gave a picturesque account. Near Old Harbour are the remains of Colbeck Castle, probably dating from the end of the seventeenth century, which must have been the most imposing building of its kind ever erected in Jamaica. Rectangular in plan, measuring 114 feet by 90 feet, it has four three-storied square tower-like buildings, one at each corner connected by arched arcades. At each corner of an outer wall, about 114 feet from the main building, was a square building and under three were dungeons.

Spanish Town, the capital of the island until 1870, is redolent of old time Jamaica and is full of objects of historic interest. In the old parish church—founded in 1655, the fabric dating from 1714 and, since 1843 the Cathedral of the Diocese, and the oldest cathedral in the British colonies—are interesting monuments to many governors, politicians, planters and others: to name but a few the Earl and Countess of Effingham (d. 1791); the wife of Sir Adam Williamson (d. 1794); and Dr. Brodbelt (d. 1795), all by Bacon; Sir Basil Keith (d. 1777), by J. Wilton, R.A.; the Countess of Elgin (d. 1842), by Sir John Steell; Colonel John Colbeck (d. 1682), who came out with Penn and Venables; William Nedham (d. 1746), four times elected speaker of the Assembly; Wil-

liam Selwyn (d. 1702), governor; Henry Cunningham (d. 1735-6), governor; Sir Thomas Modyford (d. 1679), governor; Elizabeth Modyford (d. 1649), wife successively of Samuel Barry and Sir Nicholas Lawes; Sir Thomas Lynch (d. 1684), governor; Samuel Long (d. 1683), the patriot who, with William Beeston, succeeded in maintaining the privileges of the island as against the restrictions attempted to be imposed by the Earl of Carlisle, acting on instructions from home; Peter Beckford (d. 1710), lieutenant-governor; Major General James Banister (d. 1674), at one time governor of Surinam; and to Archbishop Nuttall. The earliest monument is that to Catherine, wife of Sir Charles Lyttelton, 1662.

There is also a picture of the "Resurrection", a copy of the painting by Axel Euder in the church at Molde in Norway.

The earliest plate dates from 1777, in which year the old plate, dating from 1685, was refashioned, to the eternal disgrace of the then rector and churchwardens. The Baptismal and Marriage Registers date from 1668, the Burial from 1671. In the Square at Spanish Town one sees the old King's House, dating from 1762; the old House of Assembly of the same period, the Court House, and the Rodney Memorial, the statue being the work of Bacon.

There are few pleasanter afternoon trips to be taken in Jamaica than that down the Rio Cobre Irrigation Canal. A drive of 4½ miles from Spanish Town brings one to the dam-head, where, if permission has been obtained of the authorities, one enters a punt in which seats for some eight persons are placed, and is punted about two miles down the stream till it hits the road again, and one has to re-enter the buggy or car which has meanwhile been driven back to the place of disembarkation.

The vegetation is both luxuriant and beautiful—ferns, amongst which maiden-hair predominates, border the banks, while the stream is overhung by bamboos and coco-nut palms, anatta, guangos and other trees, with black-eyed susan and other flowery creepers. On the banks, too, one sees rushes,* which remind one of the bull-rushes at home, and in some quiet bend of the stream where the artificial canal gives place to the natural river bed, by omitting to look at coco-nuts and other tropical plants, one could almost imagine oneself in a backwater on the Thames. Here and there one sees gaulin, teal, and may be a kingfisher, whose disregard as one floats by proves that they are little disturbed in their beautiful haunts. Here and there a terrapin appears, and the water is alive with the useful mosquito larvae-killing ticky-ticky.

Now and again a humming bird flits across the scene, and if it were not for the occasional sound of a railway whistle, one might truly think oneself far from the madding crowd.

*Typha augustifolia, var domingonensis, a tropical variety of the "small reed-mace" of England.

From Spanish Town a road runs through Bog Walk over Mount Diavolo. Hakewill wrote, in his "Picturesque Tour" in 1821:

"The road over Mount Diablo, to open a more easy communication between the South and North side of the island, was formed about fifty years since. The elevation is gradual and easy to its summit, and the toil of mounting it is amply repaid by the varied and extensive prospect which it commands; the whole parish of St. Thomas in the Vale backed by the high grounds of St. David's, and the more distant Blue Mountains being spread before the eye. In the wood beneath us are the buildings of the Ivy Sugar Estate, now thrown up, and lately purchased by George Barriffe, Esq.: beyond is Claremont Penn, the property of Sir Alexander Grant, Bart., and more distant, the works on Treadways, the property of Henry Dawkins, Esq. The immense height and consequent distance renders the markings of other estates too indistinct for the pencil. The greater part of the parish is comprized within the Vale called Sixteen Mile Walk. This Vale is about eleven miles in length, and eight in width. It is neither flat nor swampy, but diversified throughout with gentle risings and slopes: the soil is fertile; for the most part a red coarse earth, mixed with clay, or a dark mould, with a whitish marl. The Vale is almost daily throughout the year overcast with a thick fog, which begins to rise slowly on the approach of evening, grows denser as the night advances, becomes gradually diffused into all the contiguous vales or inlets among the surrounding mountains, is heaviest about the dawn of day, and remains settled until the sun has warmed and agitated the air: then it rises higher, expanding in the atmosphere; and between the hours of eight and nine in the forenoon, it begins to flow away in two principal streams, the one westward among the mountains on that side; and the other southward following the course of the river. The air of this parish is in general reported healthy, and the habitations throughout the Vale, being for the most part built upon rising grounds, are not liable to damps. This tract was among the first settled with sugar plantations, and what it produces now of that commodity is of an excellent quality, but the land is thought to be much worn."

After having made a tour of the island the visitor may wish to make a closer acquaintance of the grandeur of the Blue Mountains.

There is a main road from Kingston passing the Hope toll-gate (Matilda's Corner) and the Hope Gardens, to Gordon Town, whence it continues as bridle roads to Newcastle, to Content-Gap and to Guava Ridge in the Blue Mountains. A carriage road runs from the Cooperage near Gordon Town, through Irish Town and Newcastle, to Hardwar Gap, whence it continues down the Buff Bay river valley to Buff Bay. This drive affords views of scenery as grand and beautiful, perhaps, as any to be obtained from any

driving road in the world. A more recently constructed driving road runs over Guava Ridge to Mavis Bank into the heart of the Blue Mountains. From Matilda's Corner a branch main road goes past King's House to Half-way Tree, and it is along this road and in its neighbourhood that many officials and others having business in Kingston live, and the car line runs.

For a visit to the Blue Mountain Peak for those who do not care to ride or walk, much may be done by a motor trip up these roads. For those who wish to make a closer acquaintance by means of riding or walking the best time of day at which to start is when

> "The glow-worm shows the matin to be near,
> And 'gins to pale his uneffectual fire."

The traveller thus not only gets two or three hours' cool riding, but is, as a rule, rewarded by seeing a magnificent sunrise. Soon after the sun is up, the freshness of the morning is gone, and one has to wait until an hour or so before it sets for it to be possible to ride in comfort in places exposed to its rays.

For the convenience of visitors to the Peak, a hut was built some years ago, in which a meal, carried up on mule-back, could be prepared, and a night's rest obtained, for it is too great a distance from Kingston for the journey there and back to be made in one day. But the hut has perished by neglect and vandalism. By far the pleasanter way is to spend the night with some friend in the hills, or at a house where lodgings can be obtained, and visit the Peak next day at leisure.

An Eastern proverb says, "In the desert no man meets a friend." It might truly be said of Jamaica—In the mountains, no man lacks a friend; although everyone lives, as a rule, about two hours' ride from his nearest neighbour.

Leaving Kingston, the road rises gradually, until it reaches within about three miles of Gordon Town, at the entrance to the Port Royal mountains, which take their name from that town of buccaneering fame, of the parish of which they at one time formed a part. On the road one passes, on the right the Long mountain, which is cut off from the higher ranges by the valley of the Hope river; on the left, the Jamaica College and the Botanical Gardens, Laboratory and Farm School of the Agricultural Department at an altitude of 600 to 700 feet.

Just before reaching the sixth mile-stone from Kingston, the road makes a sharp bend inland, and one feels at once that the plains are left behind, and the hill district has been entered. The air is perceptibly cooler, vegetation is visibly richer, and the landscape becomes grander and more varied. The Hope river, rushing along its rocky bed, which in time of drought seems ludicrously too large for it, but which when the "seasons" as they are called, are on, proves none too wide, offers many subjects for the artist's

pencil. An undulating road of three more miles, and Gordon Town is reached; and if a buggy has been the means of locomotion hitherto, it is relinquished for the saddle. A path to the left leads to Newcastle; where at an elevation of about 4,000 feet are stationed some of the English troops which, for the time being, do duty in the island. For the Peak, one takes the road to the right, past "The Gardens," in which Miss North made many of her drawings of Jamaica flowers and which was for some years during the eighteenth century an Island Botanical Garden; in it are still to be seen many of the fine trees and plants, of which Bryan Edwards, the historian, gave a catalogue of upwards of five hundred varieties, gathered together by Hinton East, a planter and amateur botanist, of whose heir "The Gardens" was purchased by the Government.

Here was said to have been planted the first batch of mangoes, which were brought from the East in a French ship, captured by Rodney's squadron, more than a century ago, and took so kindly to Jamaica that, when in season during the summer months, the fruits may be seen strewing the country paths as thick as leaves in Vallombrosa, while their dense foliage make a shade acceptable at any time.

Leaving "The Gardens", a steep ascent of four miles, the banks of which

> "Hang rich in flowers, and far below them roars
> The long brook falling thro' the clov'n ravine
> In cataract after cataract to the sea."

brings us to Guava Ridge, through which a gap has been cut leading from one valley to the other, whence fine views may be obtained —to the west, over the plain of Liguanea to the Red Hills in St. Catherine, a view which looks best in the light of the setting sun; to the east, over the Yallahs valley, whither the path to the Peak lies. For the next few miles it winds along the hill side, now up, now down, with a steep descent on one hand of many feet into the valley beneath; past many a negro hut, with its little plot of coffee, bananas, yams and other "bread kind," or if there be evidence of greater care and taste, it may safely be put down as a coolie dwelling; and every here and there it crosses some small rocky stream, which helps to swell the volume of the Yallahs ere it joins the sea. Past Mavis Bank, formerly a large coffee plantation with its church and chapel prominently situated on the hill side, a steep descent leads to the river bed just where the Green River joins the Yallahs, or Yellows, as some old maps have it and yellow it can be in flood time, when it carries all before it—rocks, trees, and aught else that comes in its way, and, like many other rivers in Jamaica, forms an obstacle impassable to man or beast. In dry weather it is a harmless stream, easily crossed on stepping stones.

Leaving the Port Royal mountains behind us, and entering

the range of the Blue Mountains, which often well deserve their name when seen from Kingston, we see forest trees in endless variety—mahogany, of which the Arawak made his dug-out canoe centuries before it was used for the Thames skiff; cedar, with which the roofs of most Jamaica houses are shingled; and the cotton-tree which, king-like, towers above his fellows. Another steep ascent of about three miles brings us to our destination for the night, whence situated as it is by one of the many gaps in the mountains, one gets fine views, embracing Cinchona, the former home of the Government Botanical Gardens and Plantations, the main ridge of the Blue Mountains, and the sea in the neighbourhood of Yallahs Bay, and including in its range all the principal estates where the celebrated Blue Mountain coffee is produced, and Albion on the sea-coast.

At night here, at an altitude of about 4,000 feet, a blanket is needed, and in the colder months a fire is often acceptable. In the garden grows many a plant familiar to English eyes which cannot well stand the heat of the plains below—arums, verbenas, carnations and geraniums, and vegetables such as peas, potatoes, French beans, celery and Brussels sprouts.

Starting in the morning, the way lies through coffee plantations with their carefully cleaned fields of neatly topped coffee-trees, bright with red berries, past works with their ranges of barbecues each of solid concrete about the size of a tennis-court (to which use they are in some places not infrequently devoted), on which the coffee is dried, before being prepared with an amount of anxiety and care undreamt of by many a Londoner who sips his morning cup over his *Times*. Here all is order and neatness, and the forest trees have been cut down, for at this elevation coffee suffers when too much shaded.

In a short time, leaving the last of the coffee estates, for though coffee likes high lands, it will not stand too bleak a situation, the ascent to the Peak begins in earnest and can only be made in comfort on a mule or some pony used to hill-climbing, although of late years it has been accomplished by ardent pedestrians of both sexes. Entering a tract of forest, one sees timber trees in endless variety—trees which cabinet-makers would gladly possess, but which cannot be turned to much practical use owing to the difficulty and cost of transport. Yacca most beautiful and most workable of woods; juniper cedar, with its lovely grain; satin-wood, well named; grey mountain sanders, which takes a fine polish, and many others. The tree-ferns, growing in the shady gullies lift high their umbrella-like heads towards the light, in some cases to height of twenty feet or more, on stems less massive than those of the Australian species; and they lend a truly tropical aspect to the scene, which—but for them and the beautiful delicate climbing bamboo—would not be unlike the wooded heights of North Devon. Here and there may be seen a coratoe

(or maypole, as it is commonly called), which when in flower seems like an obelisk of gold, well set off by the surrounding green.

The stillness is only broken by the melancholy note of the solitaire, which Gosse likened to the tone of a flute: one sees a John Crow, or turkey buzzard, keen alike of sight and smell, ungainly as a goose on the ground

> "Sailing with supreme dominion
> Thro the azure deep of air;"

and, anon, a mongoose runs swiftly across the path.

Soon we reach a clearing of many acres covered with cinchona trees, which about forty years ago were thought to be about to prove a veritable gold mine to the island. Unfortunately a change in the state of the quinine market upset all calculations, and the industry proved fruitless. Entering here the region of that cloud-cap which is usually seen from Kingston to be reposing on the Peak, and we begin to fear that we shall share the fate of many another visitor before us, and have no view to-day. We now reach Portland Gap, where at a height of 5,600 feet once stood the highest house in the island. A few hundred yards further on is obtained, in clear weather, a view over the north side of the island extending to Cuba 100 miles away. For us there is no such extensive view, but one more curious: a break in the gloom discloses Port Antonio with its double harbour, illumined by the sun's rays and set in a frame of mist. Still upwards, in a natural basin, where the wild pigs were wont to wallow till it was filled up, our ponies get over their fetlocks in the mud. On reaching the peak the view, is, as we feared, mist. The popular idea is that in order to make sure of getting a view it is necessary to sleep the night in the hut, as the Peak is clear at sunrise; but those who live in the neighbourhood say that though, except in the rainy season, it is probably clear during some part of the day there is no reliance to be placed on any particular hour. While we are here, the mist lifts and discloses the Yallahs valley in bright sunshine six thousand feet below; but in a moment it is gone, and all is mist again. On a clear day, the pens and sugar estates on the coast north and south may be seen with microscopic clearness, and Cuba and Hispaniola are also visible to the north and east. The thermometer kept on the Peak for meteorological purposes registers 53 degrees, and after the normal state of the temperature in Kingston, it is quite pleasant to feel cold. On our way down, we hear the tinkle of the "budge" bell, summoning the hands to work after their morning meal on some coffee estate a thousand feet below. Leaving our hosts, we decide to return by another route, which though longer, enables us to see another part of the country, not that there is any great variety in the scenery of parts of the Blue Mountains at a similar level. The road takes us down to Hagley Gap, with its post office, constabulary

station, and the few accompanying shops which naturally gather round those institutions in the country; hence fine views are gained to east and west. A ride of about two miles, somewhat trying by reason of the heat reflected by the sun-baked cliff, brings us again to the Yallahs valley, here crossed by a substantial bridge, and, passing the graves of the former owners of an estate, who were—as was then the custom—interred upon their own properties, our road gradually ascends, crossing numerous picturesque streamlets, till Guava Ridge is reached once more, and so home.

Jamaica by Rail.—The railway line runs across the island from Kingston to Montego Bay, a distance of 113 miles. There are three branch lines; one 17 miles in length, between Spanish Town and Ewarton; another from Bog Walk to Port Antonio, 54 miles in length; and a third from May Pen into Upper Clarendon. At present there is but one train each way, each week day, between Kingston and Montego Bay, and one each way between Kingston and Port Antonio. The journey to Montego Bay takes 7 hours, and to Port Antonio 4¼ hours.

A good general idea may be obtained of the island by a railway trip over the various tracks. The accompanying map shows the districts traversed, and the places of interest in the neighbourhood of each station. Buggies, and in some cases motor cars, may be obtained at the various stations: but if time permits it is well to make arrangements beforehand. In the Appendix are given a time-table and a table of fares.

XIV.—THE OUTLOOK.

In the late fifteenth and early sixteenth century, as we have seen, the West Indies, by right of discovery and occupation belonged largely to Spain; then France and England, with Holland in a less degree, claimed their share. Little by little, Spain lost all except Cuba and Porto Rico, and those finally passed from her sway but yesterday. The dominion of France was crippled by the revolutionary movement, and Martinique and Guadeloupe are all that are left to her now. England has maintained all that she had acquired by conquest and treaty at the close of the Napoleonic wars, and of late the United States has acquired Porto Rico absolutely, a footing in Cuba, and interests in Hispaniola, in both Hayti and San Domingo.

Some foresee the Americanization of the whole of the Caribbean in the not far distant future; but although the influence of the Stars and Stripes is undoubtedly spreading and prejudice against Americans growing less, it will be, it is to be hoped, a very long day before the Union Jack fails to be the predominant flag in these seas. Broadly speaking, and ignoring the Bahamas which geographically belong to Florida, the United States controls the northern and western boundaries of the Caribbean, in the former by Cuba and Porto Rico, in the latter by the Canal Zone; while England rules over the eastern bound in the Windward and Leeward Islands, and dominates the centre in Jamaica.

An indication of the Americanization that is going on in Jamaica may be found in the fact that in addition to the acquisition of much land and trade by American companies and individuals, the learned societies of that country take an increasing interest in the natural and historical affairs of the colony to a much greater extent than do similar institutions in the mother country.

Paterson in the late seventeenth century dreamed of the Isthmus of Darien, "This door of the seas, and the key of the universe" as an entrepot for Western and Eastern civilization, by means of an overland route, thereby diverting trade from the Cape. Now that the Panama Canal, through which ships pass to the number of nearly 300 a month, unites the Atlantic and the Pacific, much to the advantage of the Pacific coast of North America, the island of Jamaica will probably increase in importance: to what extent is a matter of considerable doubt. But it is undoubted that when the natural corollaries of the Monroe Doctrine, consequent on America's increased commercial interest in Central America have been put in force, and "dollar diplomacy" has succeeded in reorganizing some of the republics in question, removing some of the causes of unrest, the lands and islands in the vicinity of the Canal Zone must of necessity benefit thereby.

Colquhoun, in his "Key to the Pacific" reminded us that Humboldt more than eighty years ago drew attention to the political effects which an isthmian canal might produce; and that about half a century ago Maury, who was fond of repeating that never was there such a concentration upon any sea of commercial resources as upon the Caribbean, expressed the opinion that if the Isthmus—the barrier which separated the United States from three-quarters of the population of the earth—could be broken down, that country would be placed midway between Europe and Asia; and the Caribbean Sea would become "the centre of the world, and the focus of the world's commerce."

It is obvious, that so far as trade with the east is concerned, the canal will be of much greater service to the United States and America generally, than to Europe; and that its chief use for Europe will be more ready communication to the Pacific coasts of America and the South Sea Islands. It makes the Atlantic cities of the United States only 100 miles further from Hong Kong than Great Britain. But, as Colquhoun pointed out, to every one in Great Britain as well as in the States, "the canal will make some difference and to many a great change. It will be attended not merely by commercial but political consequences of a far reaching nature." The proposal made by some idealists that it should be toll-free, at a cost of £5.000,000 to the American taxpayers, was not acted on.

A writer in a Jamaica magazine of nearly sixty years ago, under the title "What is the matter with Jamaica," said "All we want is capital and enterprize—enterprize that has the soul of perseverance in it, without which it is not genuine." Although much capital and enterprize have been supplied since then, they are still amongst the colony's chiefest desiderata.

In 1860 Underhill wrote of Jamaica, "with some honourable exceptions, they (the planters and labourers) have no confidence in each other, a state of chronic warfare exists. On the one hand the planter exhibits no generosity in his dealings with his labourers, makes no effort for their improvement, grants them no privileges; on the other hand the people feel that whatever they possess in the way of property, education, and freedom, they owe none of it to the planters, and so are often careless in fulfilling their obligations, and indifferent to the interest of their employers. Both planters and labourers, in many parts of Jamaica, have yet to learn that regard for each other's well-being is to the advantage of all."

A great advance, both in co-operation amongst planters and in their treatment of labourers, has been made since Underhill wrote; and in the case of the former during recent years a prominent part has been played in the Imperial Department of Agriculture, as well as the Jamaica Imperial Association, local agricultural societies and their resultant shows, and the more recently formed Citizens Associations which are scattered about the island. The Jamaica

Agricultural Society has also done something to remove a lack of sympathy with agricultural science on the part of some of the planters in the West Indies. So far as sugar is concerned, although the fabulous fortunes which it once produced will probably never be made again and in spite of the great set-back it received by reason of the recent slump in prices and an impending American aid to Cuba, it has a fair future before it, chiefly by reason of British preference, and if this be granted for ten years as is proposed, a much to be desired stability will be attained.

Banana cultivation has also a fair future before it, and is able to command means of transhipment to its customers without subsidy-aided lines of communication.

So far as trade and commerce are concerned Jamaica is at the moment in a somewhat critical condition. The West Indies have pre-eminently been the sport of politics. In the eighteenth century lands won by sweat and blood were resigned by the politician's pen. And the industries of the island have ever the sword of hostile tariffs hanging over their heads.

In the intellectual and social condition of the people themselves there has been a very marked improvement in the last two generations. Their homes are more substantial and comfortable, their manners have improved with respect to family life, their clothing displays an evident desire to attain to higher culture, and they show signs of taking interest in parochial and educational affairs; although one must confess that drunkenness, which once was rarely met with, is on the increase and infant mortality and the illegitimate birth rate are both appallingly high.

Ever since the revolt of the American colonies, when what is now the Dominion of Canada became the only British territory on the North American continent, there have been spasmodic efforts made to quicken trade relationship between that country and the West Indies. Though sometimes talked of, political union seems very unlikely; but there is no reason why trade relationship should not be closer. The steps which were recently taken by the sending of commercial delegates from the Dominion to the West Indies, and by the holding of a Trade Commission has been followed by a treaty of reciprocal trading between the Dominion and the British West Indies; a Trade Commission has opened an office in Kingston, and better steamship and cable communication has been arranged for. As it is, the trade between Canada and the West Indies has increased of late years.

In times of discontent and unrest such as the present, when change seems imperative, both States and men are apt to act impulsively and to readily grasp any new idea without carefully weighing its relative advantages and disadvantages. This perhaps forms one reason why the idea of West Indian federation with Canada has recently received some support in unexpected quarters,

There are two proposals in the air, one for commercial union only, the other for a complete political federation.

In considering the matter, it must be accorded to Canada's credit that it was she amongst the colonies who first gave practical effect to Imperial Preference; but that seems no good reason why Jamaica should take a step which otherwise appears undesirable.

Of late years the question of federation with Canada on the part of the British West Indies has been much discussed from time to time in the press, both West Indian and Canadian. It is contended by some that commercial reciprocity is not sufficient, and that Jamaica should become part of the Dominion and thus gain all that the Dominion had to give; a good steamship service; a "big brother" to fight for her commercially as against the United States, and, being an integral part of a large Dominion, power to speak in the councils of the Empire; the use of Canadian capital for the extension of Jamaica industries; reciprocity in the way of trade, with compensation for any loss caused by such reciprocity, and cheaper living by reason of the resultant tariff reductions. It is said that commercial union has no stability, and that it would not give Canada what she desires, a strip of tropical territory which she could call her own.

The opponents of political union say that the distance is a handicap, a handicap which is felt in the Dominion itself with its own domestic affairs, and the lack of knowledge and fear of tampering with legislation are insuperable objections. They also fear, from past experience, what might be the treatment accorded to coloured folk in the certain walks of life in the Dominion, arguing that a country which bars East Indians is not likely to be unduly favourable to West Indians of African origin.

There seems little ground for saying that the British West Indies as a whole desire federation with Canada. It is certainly untrue of Jamaica. But all the British West Indies are ready to welcome closer trade relationship with the Dominion.

On the whole it seems that Jamaica would decidedly lose by ceasing to be a colony of Great Britain in order to become a colony of Canada. In any case a first condition would seem to be a better common knowledge of the two countries. Complaints are not infrequently heard in Jamaica of Downing Street's ignorance of things Jamaican. In comparison with Ottawa, Downing Street is in a state of complete understanding.

The need for further knowledge on the part of Downing Street has at length found expression in the somewhat meteoric visit of the Colonial Office Commission in 1921-2.

In considering the future of Jamaica it is well to think of the island as part of the West Indian section of the British Empire.

With regard to the question of Federation, which now and again crops up, it is evident that it is far more readily applicable to the Windward and Leeward groups with British Guiana, than to

Jamaica, which in a sense stands by itself or coupled with British Honduras and the Bahamas; and, moreover, Federation is a thing which must grow and cannot be forced. As a commencement, two divisions, an Eastern and a Western Caribbean Federation, would probably answer better than a complete union. The difficulties, though great until aviation becomes the normal mode of travelling, are, however, not insuperable. Federation once achieved, even in an elementary form, the West Indies would at least have a claim to a voice in the councils of the Empire. And, although the financial saving would probably be not so great as some think, matters connected with legislation, the administration of justice, education and police would undoubtedly benefit by closer relationship between the various parts of the West Indian colonies. Currency and tariff might also approach to a greater degree of uniformity than exists at present.

During the last ten years the West Indies have held conferences on steamship communication, customs, commerce, agriculture, law, education and medicine; but a serious set back to much needed co-operation has been experienced in the recent refusal of some of the colonies to participate in a conference summoned by the Colonial Office. To the Colonies, preferential tariffs, far more than any scheme of defence committees or of parliamentary representation at Westminster, have always seemed the living issue of Imperial Federation; but there never has been, and there never may be, any question of a real British Zollverein—a single customs union for the whole Empire. The fiscal systems of the colonies, in spite of reciprocal clauses, would continue fundamentally different from each other and from any which the Mother Country might adopt, and political sentimentalism has never been allowed to injure the prospects of trade. This feeling not so long ago actuated those in Jamaica who refused to favour Canada by paying more to her for railway trucks than the amount which the United States asked for the same articles. And the fact that by the League of Nations the British Overseas Dominions virtually become nations strengthens this feeling.

What is first needed is good steamship communication between the islands and England and Canada and Inter-Communication between the islands themselves. A great need is co-operation between the various colonies. In the Colonial and Indian Exhibition of 1896 the West Indies—almost in spite of themselves—made a federated representation, and thus enabled those in the homeland to better understand their importance. Prospects of co-operation are now brighter than they were then. It is to be hoped that a similar representation will be made at the forthcoming British Empire Exhibition.

West Indian trade as a whole would command more respect in British Commercial circles that individual islands can achieve. The British West Indies are fortunate in having a common agent

in England in the West India Committee.

Pace the *Times* it is doubtful whether amalgamation under a single federal government of Canada, Newfoundland and the West Indies would be a long step towards a closer union of the Empire. A federation of the West Indian Colonies probably would. In the matter of commercial without political union, the difficulties of adopting the Canadian tariff and preference system, seem almost insuperable. If further opportunity were needed for expression of loyalty than that afforded by the war, Lord Rothermere gave it in November 1919 by his ill-considered suggestion that certain West Indian Colonies should be handed over to the United States in liquidation of war debt. The proposal that Great Britain should part with all or any of them to defray part of her war debt to America is hardly to be taken seriously. It has been suggested that the British West Indies, at the price paid per acre by America for the Danish West Indies, are worth 2,500,000,000 dollars: but those American writers are out in their estimate when they announce that there is little doubt that the islanders would vote to join themselves to the United States, in spite of the fact that such a union would produce an increased market for their produce.

In considering Jamaica's future from a domestic point of view, we find amongst subjects recently receiving legislative attion—in order to stem the tide of emigration to Cuba and the United States engendered, not by love of adventure, but by unsatisfactory surroundings at home—assistance to Education, both secondary and elementary; the strengthening of the Police Force; the improvement of the Railway, the care of the young, and the repression of preventible diseases.

One of England's greatest artists says of England in a recent book: "In this country we are so much occupied with politics and business that little leisure is left for the Arts." In Jamaica one might say—no leisure at all.

Although West Indians cannot be regarded as a people either politically or ethnologically, yet it would seem that they are slowly growing into closer sympathy, island with island, and race with race. Whites, blacks, coloured people, and East Indians, all live together in harmony, and with a common regard for the British crown; and the alien Chinamen and Syrians are law-abiding citizens, although prejudice against the Chinese by reason of their successful trading is seen, similar to the prejudice against the Jews in the seventeenth century.

Slowly the prejudice against colour is dying out. In Jamaica black and coloured folk live probably under happier conditions than anywhere else in the world. Colour prejudice is less strong here than in some of the more conservative sugar colonies. Colour is absolutely no bar to promotion in official life, and a successful coloured man has as good a chance socially in Jamaica as anywhere in the world.

Peoples, as well as individuals, may perhaps be judged best by the manner of their behaviour in time of great stress. In the war of Haytian Independence Stephens claims that the Haytians conducted themselves with a degree of forbearance and humanity such as was never surpassed by any people upon earth.

At the time of Emancipation the West Indian slaves behaved with a decorum that was wonderful in the circumstances, and gave the lie direct to many forebodings of evil. At the time of the 1907 earthquake in Jamaica the conduct of the people on the whole was admirable. On the outbreak of war Jamaica responded nobly. In all three cases they afterwards, for a time, shewed a lack of staying power, and did not fulfil the early promise. But older civilizations have recently shown a similar lack of stability.

When all is said, the conviction remains that for several generations, the stimulating influence of English direction and encouragement will have to be adapted to the powerful assimilating tendency arising from incorporation in the British Empire, if the people of the West Indies are to progress at such a rate of speed as will enable them in due time, to take and maintain their place beside the peoples of countries at present more advanced.

The British islands in the West Indies have, it is to be feared, long years of tutelage before them ere they can become an autonmous colony, although the serious consideration of proposals for the federation of some of them is a good sign. The parochial boards of the various parishes form training grounds for political enfranchisement, and the formation of numerous Citizens Associations is a hopeful sign, as is the cry for further political power.

England, during two centuries of occupation in the West Indies, incurred by reason of her participation in the slave-trade and slavery generally, an obligation to the negroes, even when all allowance is made for the darkness of their native life in Africa. This debt she is now endeavouring to pay by doing her utmost to advance the interests of the race, politically, commercially and socially; and not without many evidences of success.

Jamaica is still in the adolescent stage of nature—exporting raw products and importing manufactured articles.

The war has had ill effects on the vital statistics of Jamaica. There was a serious rise in the death-rate and a decrease in the birth-rate; until in 1918 the births only exceeded the deaths by about one thousand, and the illegitimacy rate rose to 68 per cent. The increase in deaths was due partly to the influenza, and the decrease in births to the absence of men at the front, and the emigration to Cuba. It is to be hoped that better sanitation and encouragement to the Jamaica labourer to stay in his native island may cause an improvement in the state of affairs indicated.

It is interesting to note that only as late as July 1921 did the Treasury, after correspondence with the Foreign Office, the

Colonial Office, the Admiralty and War Office, remove Jamaica, in common with some other tropical colonies and countries, from the list of unhealthy places, for the purpose of the Superannuation Acts.

In conclusion Jamaica—at once the largest of the British West India islands, and an island possessing a greater variety of climate and products than any other and affording as healthy a residence as the best of them—has interest to the lover of history, especially of the British Empire; to the naturalist; to those in search of health and relief from the trying climate of an English winter, or of scenery of great variety and beauty; and to the agricultural settler with a certain amount of capital, who is prepared to take the country as he finds it, and does not expect to change his home without changing his mode of life.

Jamaica, alike in the past and in the present, affords a picture in which lights and shadows are strangely commingled. To some the lights form the prominent features, to others the shadows. It is a picture which needs years of study for its comprehension, and those who think that a few weeks sojourn suffices for its interpretation are sadly mistaken. On the whole, it would seem that the lights are increasing, while the shadows recede before the advance of civilising influences, and many a Jamaican, native-born or adopted, may say, with apologies to Rudyard Kipling:

God gives all men all earth to love,
But since man's heart is small,
Ordains for each one spot shall prove
Beloved over all.
Each to his choice, and I rejoice
The lot has fallen to me
In a fair isle—in a fair isle—
Jamaica in the sea!

APPENDIX.

XV. OFFICIAL LIST.

THE GOVERNOR:	His Excellency, Sir Leslie Probyn, K.C.M.G.
Private Secretary:	Captain John Dudley Lucie-Smith.
THE OFFICER COMMANDING THE FORCES:	Brevet Lieut.-Colonel J. M. C. Doran, C.B.E., D.S.O.
COLONIAL SECRETARY:	Brevet-Colonel H. Bryan, C.M.G., D.S.O.
JUDICIAL:	
Chief Justice	His Honour Sir Anthony Michael Coll, M.M., B.C.L., K.C.
Puisne Judges	His Honour Mr. Justice Sisnett
	His Honour Mr. Justice De Frietas
Judge of the Kingston Court	His Honour Mr. Justice Orpen
Attorney-General	Hon. F. C. Wells-Durrant, K.C.
Assistant to Attorney-General	H. K. Ryan, O.B.E.
Crown Solicitor	A. J. Corinaldi
Registrar of the Supreme Court	H. I. C. Brown, B.A., K.C.
Registrar-General and Deputy Keeper of Records	D. Balfour.
Administrator-General and Trustee in Bankruptcy	J. M. Nethersole.
POLICE:	
Inspector General	Colonel W. Eden Clarke.
Director of Prisons	B. O'Toole
IMMIGRATION:	
Protector of Immigrants	F. N. Isaacs.
FISCAL:	
Auditor-General	C. G. H. Davis.
Collector-General and Stamp Commissioner	Robert Johnstone, C M.G., I.S.O.
Collector of Customs, Kingston	B. deS. Bell.
Inspector of Income Tax	E. S. Murray
MEDICINE:	
Superintending Medical Officer	E. Langley Hunt, C.M.G.
Bacteriologist and Pathologist	L. M. Moody.
Medical Superintendent Lunatic Asylum	D. J. Williams, M.R.C.S., Eng., L.R.C.P., Lon., M P.C.

Health Officer, Port Royal	E. R. C. Earle, M.B., Lon., M.R.C.P., L.R.C.P.
Health Officer, Kingston	E.E. Murray, M.B., B.S., Lon.
Quarantine Board, Secretary	Charles Don.
Central Board of Health, Secretary	M. C. Solomon.
Senior Sanitary Medical Officer	G. C. Strathairn
PUBLIC WORKS:	
Director of Public Works	C. Espeut.
Electrical Inspector	G. A. Rock.
RAILWAY:	
Director of Railway	Major Lewis Thomas.
Surveyor-General	A. Baker (Acting.)
POST AND TELEGRAPHS:	
Postmaster	Ellis Wolfe.
METEOROLOGY:	
Government Meteorologist	J. F. Brennan, Assoc. M. Inst., C.E., F.R. Met. S.
MARITIME:	
Harbour Master	Lieut. J. H. Owen, R.N.R.
Marine Board, Secretary	
EDUCATION:	
Director of Education	P. J. O'L. Bradbury, M.A.
Jamaica Schools Commission (Secondary Education.)	F. E. Reed, B.A.
Board of Education (Elementary Education), Secretary	Rev. J. Reinke, D.D.
Institute of Jamaica, Secretary and Librarian	F. Cundall, F.S.A.
AGRICULTURE:	
Director of Agriculture and Island Chemist	H. H. Cousins, M.A., F.C.S.
Government Botanist	Vacant
Industrial Chemist	E. E. A. Campbell, M.Sc.
Microbiologist	Vacant
Entomologist	C. C. Gowdey, B.Sc.
Jamaica Agricultural Society, Secretary	J. Barclay.
PRINTING:	
Superintendent Government Printing Office	Major C. S. Sanguinetti.
POOR RELIEF:	
Board of Supervision, Secretary	F. N. Isaacs.
EXHIBITIONS:	
Permanent Exhibitions Committee, Hony. Secretary	J. Barclay.

Turks and Caicos Islands	
Commissioner	His Honour G. Whitfield Smith.
Cayman Islands	
Commissioner	His Honour H. H. Hutchings.
Imperial Commissioner of Agriculture for the West Indies (resident at Barbados.)	Sir Francis Watts, K.C.M.G.
The Jamaica Imperial Association, Secretary	H. G. deLisser, C.M.G.
Royal Colonial Institute, London, Honorary Representative	The Jamaica Imperial Association
Victoria League, Jamaica, Honorary Secretary	Mrs. N. Roots.
West India Committee, London, Honorary Corespondents	The Jamaica Imperial Association and others.
Jamaica Tourist Association, Secretary	A. Innes Pocock.
Commercial Commissioner for Canada	G. R. Stevens.
H. M. Trade Commissioner for the West Indies	A. W. H. Hall. Port of Spain, Trinidad.
Crown Agents in London	Major Sir M. A. Cameron, K.C.M.G. Sir W. H. Mercer, K.C.M.G.
West India Committee, London, Secretary	Algernon E. Aspinall, C.M.G.
West India Club, London, Hon. Secretary	Captain F. F. C. Messam.
Canadian and West Indian League	Lindsay Building, Montreal, Quebec, Canada.

PRIVY COUNCIL.

Ex-Officio Members.

The Senior Military Officer, Jamaica.

The Colonial Secretary. The Attorney General.

Nominated Members.

Sir John Pringle, M.B., K.C.M.G. Robert Johnstone, C.M.G., I S.O.

Thomas Lawrence Roxburgh, C.M.G. David Sampson Gideon.

William Morrison.

Clerk to the Privy Council, D. H. Hall.

LEGISLATIVE COUNCIL.

President—His Excellency the Governor.

Ex-Officio Members.

Brevet-Lieut.-Colonel J. C. M. Doran, C.B.E., D.S.O., Senior Military Officer in Command of His Majesty's Forces in this Island.

Brev.-Col. Herbert Bryan, C.M.G., D.S.O., Colonial Secretary.

F. C. Wells-Durrant, K.C., Attorney General.

Claude V. Espeut, Director of Public Works.

Robert Johnstone, C.M.G., I.S.O., Collector General.

Nominated Members.

Sir John Pringle, M.B., K C.M.G.
Alfred Edmund Wigan.
Herbert Henry Cousins, M.A., F.C.S.
Horace Victor Myers, M.B.E.
C. G. H. Davis.
Edward Langley Hunt, C.M.G.
Rev. A. A. Barclay.
W. A. S. Vickers.
William Morrison.

Elected Members.

Joseph Henriques Phillips	St. Thomas.
James Alexander George Smith	Clarendon
Major Edward Travers Dixon	St. Andrew
Guy Seymour Ewen	Trelawny
Charles Wesley Hewitt	Hanover
Hubert Ashton Laselve Simpson, O.B.E.	Kingston
P. F. Lightbody	St. James
Dunbar Theophilus Wint	St. Ann
A. E. Ffrench, M.B.E.	Portland
Rev. William Thomas Graham	St. Mary
Alfred George Nash	Manchester
Richard Farewell Williams	Westmoreland
Rev. George Lewis Young	St. Catherine
Peter Watt Sangster	St. Elizabeth

Clerk to the Legislative Council—Philip Stern, K.C.

CUSTODES, CHAIRMEN OF PAROCHIAL BOARDS, AND RESIDENT MAGISTRATES OF PARISHES.

Parish	Custos	Chairman of Parochial Board	Resident Magistrate
Kingston	Vacant	R. W. Bryant (Mayor)	A. V. Kingdom
Port Royal			
St. Andrew	Vacant	G. P. Myers	A. V. Kingdom
St. Thomas	C. H. Levy	J. H. Williams	H. C. Robinson
Portland	Com. E. C. Hall, R.N.	A. E. Ffrench	J. E. R. Stephens
St. Mary	Sir J. Pringle	Sir J. Pringle	Vacant
St. Ann	Brig-Gen. E. A. Moulton-Barrett, C.B., C. M. G.	J. H. Levy	C. H. Y. Slader
Trelawny	G. S. Ewen	A. L. Delgado	C. M. Ogilvie
St. James	W. Coke Kerr	A. H. Browne	C. A. Bicknell
Hanover	G. A. L. Santflebben	G. A. L. Santflebben	C. M. Calder
Westmoreland	H. Clarke	T. A. Junor	
St. Elizabeth	A. E. Harrison	A. N. Williams	G. H. Clark
Manchester	H. E. Crum-Ewing	A .C. L. Martin	
Clarendon	G. W. Muirhead	W. H. Macaulay	W. P. Clark
St. Catherine	G. McGrath	W. R. Turner	J. V. Leach

FOREIGN CONSULS & CONSULAR AGENTS IN JAMAICA

Country Represented.	Name.	
Argentine Republic	L. P. Fernandez, *Vice-Consul*	Kingston
Belgium	Charles Penoz, *Consul General for Antilles.*	Havana
do.	L. M. Pietersz, *Consul*	Kingston
Chile	C. E. Burton, *Consul*	do.
Columbia	Dr. David McCormick, *Consul*	do.
Cuba	Gustavo S. Mustelier, *Consul*	
Denmark	Vacant, *Consul.*	do.
France	I. Gadpaille, *Consular Agent*	do.
Greece	Vacant, *Consul.*	do.
Guatemala	P. R. Machado, *Consul*	do.
Hayti	Dr. Justin Dominique, *Consul General*	do.
Honduras	M. DeCordova, *Consul*	do.
do.	E. Parsons, *Consular Agent*	Grand Cayman
Italy	F. C. Henriques, *Consul*	Kingston
Netherlands	E. A. H. Haggart, *Consul*	do.
Nicaragua	M. DeCordova, *Consul General*	do.
do.	S. J. Streadwick, *Consul*	do.
Norway	R. S. Gamble, *Consul*	do.
do.	Hon. D.S. Gideon, *Vice Consul*	Port Antonio
do.	C. G. Farquharson, *Vice Consul*	Sav-la-mar
do.	E. T. Hart, *Vice Consul*	Montego Bay
do.	W. M. Cochrane, *Consul*	Grand Cayman
Panama	C.D. Corinaldi, *Consul General*	Kingston
do.	A. Miller, *Vice Consul*	do.
do.	Hon. G. L. Sanftleben, *Consular Agent*	Lucea
Peru	C. D. Rowe, *Consul (Actg.)*	Kingston
Santo Domingo	Manuel de J. Aybar, *Consul General*	do.
San Salvador	M. DeCordova, *Consul*	do.
Spain	L. P. Fernandez, *Vice Consul*	do.
Sweden	Hon. Horace V. Myers, M.B.E.	do.
do.	E. Parsons, *Consular Agent*	Grand Cayman
U.S. America	C. L. Latham, *Consul*	Kingston
do.	W. W. Heard, *Vice Consul*	do.
	R. F. Boyce, *Vice Consul*	do.
Venezuela	Dr. D. Saint Cyr, *Hon. Consul*	do.

XVI.—ELEVATIONS

Originally prepared by the late William Harris, F.L.S.

KINGSTON.

	ft.		ft.
Top of Race Course ..	154	Headquarters House ..	58
North Street ..	70	Parade ..	39

ST. ANDREW.

Lawrence Tavern ..	1,068	Cinchona, residence ..	4,907
Hope Gardens ..	668	Chester Vale, house ..	3,200
Belle Vue (Sir J. A. Swettenham) ..	3,784	Catherine's Peak ..	5,036
Berwick house ..	2,600	Mount Hybla, house ..	3,700
Clydesdale ..	3,550	Mount Moses, house ..	2,016
Craighton ..	2,600	Mount Moses, summit ..	4,000
Flamstead ..	3,663	New Haven Gap ..	5,600
Hardwar Gap ..	4,079	Old England ..	3,500
Moody's Gap ..	3,000	Pleasant Hill, house ..	3,660
Stony Hill ..	1,360	Resource, where road from Pleasant Hill crosses ..	4,300
Morce's Gap ..	4,943	Ropley ..	2,709
Mount Charles ..	1,461	Silver Hill Gap ..	3,513
Newcastle, mess room ..	3,974	Sir John's Peak ..	6,100
John Crow Peak ..	6,000	Tweedside ..	2,000
Content Gap ..	3,225	White River Gap ..	3,530
Cold Spring Gap ..	4,523	Woodcutter's Gap ..	4,300
Clifton Mount, house ..	4,491		

ST. THOMAS.

Whitfield Hall, below Works ..	3,000	John Crow Range, average	2,100
Blue Mountain Peak (eastern peak) ..	7,360	Llandeway Gap ..	1,722
Blue Mountain Peak ..	7,423	Manning's Gap ..	2,038
Arntully Gap ..	2,843	Newington Landslip ..	3,419
Abbey Green ..	3,900	Orange Park ..	1,900
Cold Ridge ..	4,280	Portland Gap ..	5,600
Hagley Gap ..	1,959	Prospect ..	2,831
Island Head ..	2,500	Windsor Castle ..	2,254
		Bath ..	170

PORTLAND.

Black Hill ..	481	Low Layton great house ..	124
Cedar Hurst ..	2,053	Skibo ..	181
Cuna-Cuna Pass ..	2,698	Spring Garden ..	29
Lignite-bed above Monatown ..	1,257		

ST. MARY.

	ft.		ft.
Brainerd	1,338	Claremont	1,159
Camberwell	1,240	Retreat	92
Cape Clear	923	Richmond	575
Carron Hall	1,959	Scott's Hall	623
Castleton Gardens	496		

ST. ANN.

Aboukir	2,017	Farm	1,606
Annandale	1,491	Guy's Hill	2,100
Bensonton, chapel	1,770	Light Hole	1,982
Brown's Town	1,148	Moneague	922
Cascade, Yankee River	2,276	Walton	526
Cave Valley	1,871		

TRELAWNY.

All Sides	2,413	Stirling Castle	1,021
Alps, summit	2,246	Stonehenge	794
Ashley Hall	1,387	Swanswick	694
Calabar	328	Troy	1,200
Canaan	501	Troy Spring	1,924
Phoenix	370	Ulster Spring	1,669

ST. JAMES.

Blue Hole	1,193	Maroon Town	1,718
Catadupa	1,500	Millennium Hill	890
Cinnamon Hill	209	Salter's Hill	889
Cold Spring	2,035	Schaw's Castle	1,305
Latium	447	Springfield	1,633

HANOVER.

Bachelor's Hall	297	Knockalva	904
Cascade church	1,132	Mosquito Cove	196
Dolphin Head	1,816	Prosper Hill	678
Kendal	138	Williamsfield	390

WESTMORELAND.

Barneyside	1,420	Meyersfield Mountain	398
Camp Savanna	128	Moreland	739
Kew Park	1,177	New Works	1,884
Kings	429	Shrewsbury	177

ST. ELIZABETH.

Accompong	1,409	Lover's Leap	1,507
Breadnut Valley	106	Mulgrave	1,219
Corby	2,151	Pisgah	1,321
Keynsham	1,110	Malvern	2,310

MANCHESTER.

Chudleigh	2,769	Mile Gully	1,600
Coley Ville	3,045	Mile Gully Mountain	2,926
Craig Head	2,619	Newport	2,239
Davyton	2,211	Porus	456
Emporium	879	Wigton	2,298
Mandeville	2,131		

CLARENDON.

	ft.		ft.
Arthur's Seat ..	1,190	Main Ridge ..	2,542
Bull Head ..	2,825	May Pen ..	231
Cabbage Hall ..	2,183	Whitney ..	1,327
		Chapelton ..	855

ST. CATHERINE.

Point Hill, parsonage ..	2,031	Blue Hole ..	1,820
Spanish Town ..	147	Bodle's Pen ..	196
Mount Diavolo, summit ..	3,053	Cross Road ..	2,146
Mount Diavolo, where road crosses ..	1,800	Juan de Bolas ..	2,728
		Linstead ..	403

XVII.—MINERAL SPRINGS.

I.—MILK RIVER.

One pint contains:	92 deg. F.: Savory & Moore
Chloride of Potassium	1.44
Chloride of Magnesium	37.08
Chloride of Sodium	186.93
Chloride of Calcium	13.50
Sulphate of Soda	27.93

With traces of silica, chloride of lithium, iodide of sodium, bromide of potassium, bromide of sodium, bromide of magnesium and silica. Organic matter undetermined.

II.—JAMAICA SPA, SILVER HILL.

One pint contains:	63 deg. F.: Bowrey.
Carbonate of Lime	..
Chloride of Sodium	.125
Sulphate of Soda	.341
Sulphate of Magnesia	1.745
Sulphate of Lime	1.234
Sulphate of Iron	8.033
Phospheric Acid	..
Sulphate of Alumina	1.360
Silica	.883
Organic Matter	..

III.—ST. THOMAS.

One pint contains:	130 deg. F.: Bowrey.
Carbonate of Soda	.21
Chloride of Sodium	1.48
Chloride of Potassium	0.04
Sulphate of Lime	0.62
Sulphate of Soda	0.79
Silicate of Soda	.45
Sulphuretted Hydrogen	Undtd.

IV.—MANATEE BAY.

One pint contains:	
Carbonate of Iron	Traces.
Carbonate of Lime	2.71
Chloride of Potassium	..
Chloride of Sodium	52.52
Chloride of Magnesium	4.34
Chloride of Calcium	1.31
Phosphate of Alumina	Traces.

For fuller information about the Mineral Springs of the island, reference should be made to "The Mineral Springs of Jamaica," by J. C. Phillippo, M.D., Kingston, Ja., 1891.

XVIII. OUTLINE OF JAMAICA GEOLOGICAL HISTORY.

(From 'The Geology and Physical Geography of Jamaica' by Robert T. Hill, 1899.)

TIME	SERIES	FORMATION	MATERIAL	FOSSIL REMAINS.	EVENTS	CONDITIONS. GEOGRAPHIC
Late Pleistocene and Recent.	Coastal	Bogue Island Montego Falmouth Coast Soboruco Barbican Hopewell	Mangrove mud. Alluvial Littoral marl Elevated reef rock. Elevated reef rock. Elevated reef rock.	Marine Mollusca, reef corals, etc Reef coral. Reef coral. Reef coral.	Successive elevations, aggregating less than 500 feet.	Slight peripheral expansion of area to present outline.
Pliocene		Manchioneal Kingston	Littoral marl. Old aggradational material.	Marine Mollusca, Foraminifera, Brachiopoda.	Subsidence, submerging margins of the island.	Island contracted to back coast borders.
Miocene or Late Oligocene.	Bowden	May Pen Bowden	Impure lime Conglomerate and marl.	Marine Mollusca, Echinoids, simple corals, Foraminifera and Bryozoa. Same as above and fresh-water shells.	Submergence by subsidence of the margins of the island.	Contraction of island by subsidence.
Middle Oligocene.		Break			Mountain folding. Elevations to 10,000 feet or more. Intense erosion of surface & intrusion of 'granitoid' rocks.	Area expanded beyond present limits; probable connected Antillean lands.
Early Eocene To Early Oligocene	Oceanic	Cobre Moneague Montpelier Chapelton Catadupa	White limestone and marl. White limestone. White chalk with flints. Yellow-white lime-stone. Nodular limestone in clay.	A few mollusks and simple corals. Foraminifera and Radiolaria Mollusca, corals, Echinoids, and Foraminifera.	Rising bottom. Profound oceanic subsidence Initiation of Montpelier subsidence.	All of island submerged except a few points of highest mountains.
Late Cretaceous	Blue Mountain	Richmond Minho Ballard Logie Green Jerusalem Frankenfield	Alteration of clay and sandstone. Volcanic tuffs. Black bituminous shale. Yellow marls. Irregular beds of limestone. Irregular bedded lavas, tuffs. and conglomerates of hornblende andesites.	A few mollusks and corals, Rudistes, corals, and mollusks. Rudistes, corals, and mollusks. Rudistes, corals, and mollusks.	Erosion and deposition of muddy sediments. Active vulcanism. Erosion and muddy depositions. Irregular deposition during a general period of erosion. Active vulcanism.	Lowering of land by erosion. Volcanic summits rising out of the Mesozoic sea.

XIX.—SHIPPING COMPANIES.

ELDERS & FYFFE'S, LIMITED.

Passenger Service.

There are regular sailings from Kingston to Avonmouth (Bristol), Garston (Liverpool) and to Limon, Costa Rica.

The vessels are 6,000 tons each. Specially constructed for tropical service. Fully equipped with Radio Telegraph.

Superb accommodation, spacious promenade decks, luxuriously appointed social rooms. Excellent Cuisine. Passenger fares (subject to change without notice): To Avonmouth £40 single: £75 return.

For further information apply to The United Fruit Company, 40 Harbour Street, Kingston, Jamaica, or Messrs. Elders & Fyffes, Ltd., 31 and 32 Bow St., London, W.C. 2.

UNITED FRUIT COMPANY.

Steamship Service.

Modern passenger and freight steamers constructed specially for tropical service provide outside state rooms, promenade decks, social saloons, equipped with Radio-Telegraph, bilge keels, and other modern devices for the comfort and safety of ocean travel. Specially equipped for the rapid and safe handling of freight of all descriptions, including heavy lifts.

Weekly sailings from New York to Kingston, Cristobal, Cartagena, Pureto Colombia, Santa Marta, Kingston, New York. Fortnightly sailings from New York via Santiago to Kingston, Belize, Puerto Barrios, Tela, Truxillo, Kingston, Santiago, New York.

Connection may be made at Cristobal for ports on the West coast of South America and for Limon, Costa Rica. There are also auxiliary cargo services from New Orleans and New York, usually extended to Jamaica outports. Cargo lifted on through Bills of Lading for transhipment at New York to Canada and Europe, and via Cristobal to West coast ports of South America.

Office in Kingston, 40 Harbour Street.

THE ROYAL MAIL STEAM PACKET COMPANY.

(Royal Charter, dated 1839).

THE PACIFIC STEAM NAVIGATION COMPANY.

(Royal Charter dated 1840.)

Head Offices.—Royal Mail Building, Moorgate Street, London & Goree, Water Street, Liverpool.

Branch Offices in England.—32 Cockspur St., London; R.M.S.P. Building, Southampton; 5 Albert Square, Manchester; 6 Bond Street, Leeds; 86 Colmore Row, Birmingham; 125 Buchanan Street, Glasgow.

New York Office.—26 Broadway.

West Indies Cargo Service.

Tyne	....	....	....	5,097 tons
Tamar	....	....	....	3,844 „
Teviot	....	....	....	3,271 „
Conway	....	....	....	2,650 „
Catalina	....	....	....	2,645 „

Sailings of the West Indies Mail passenger services are suspended until further notice.

Cargo steamers leave London and Continental ports every three weeks for Jamaica, San Domingo and Hayti.

These and other steamers leave Jamaica about fortnightly for Havre, Antwerp, London and Hamburg.

Jamaica Coastal Freight Service.

By motorship "Arno" sailing from Kingston to usual outports every ten days.

Representative in Jamaica.—C. A. Gay, R.M.S.P. Building, 8 Port Royal Street, Kingston.

LEYLAND-HARRISON LINE.

(Joint Service between Liverpool, Glasgow and Kingston direct.)

Frederick Leyland & Co., Ltd., 27 James St., Liverpool,

Thos. & Jas. Harrison, Mersey Chambers.

Steamers of the above joint service are despatched every ten days from Liverpool for Kingston, calling once a month at Glasgow, and performing the voyage to Kingston in 16 days.

After loading homeward cargo at Kingston these steamers proceed to the United States (Southern Ports) and Liverpool.

Agents in Kingston—Arnold L. Malabre & Co.

PICKFORD AND BLACK LTD. (JAMAICA—HALIFAX SERVICE.)

Regular fortnightly sailings between Halifax and Jamaica and vice versa, calling at Santiago south bound only. Steamers call at the principal Jamaica outports.

Freight carried to all points in Canada, the United Kingdom, Australia and New Zealand, also to British West India Islands.

Rates and other information on application to—Pickford & Black, Ltd., Managers, Halifax, Nova Scotia; J. Cendoya, Agent, Santiago de Cuba, or H. Macaulay Orrett, General Agent, Kingston, Jamaica,

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ATLANTIC FRUIT COMPANY.

Jamaica Division.

A steamship service is maintained by this company between Jamaica and United States Northern ports. Freight and passenger agencies are located at all the principal shipping ports of the island.

Acting Manager—L. P. Downer. General Offices—No. 1 King Street, Kingston.

General Offices—17 Battery Place, New York City.

LONE STAR STEAMSHIP CO. (Incorporated).

This Company maintains a ten day service between Galveston, U.S.A., and Kingston, Jamaica, calling at Cuban, Haytian and Porto Rican ports.

Passenger rates—Galveston to Kingston, $65.00; Havana to Kingston, $35.00; Santiago to Kingston, $15.00.

Agents—Soutar & Co., 11 King St.

CARIBBEAN STEAMSHIP CO., LTD.

Regular freight service between New York, Jamaica and Colombia.

The steamers sail from New York about every ten days, and call at Kingston, then proceed to Puerto Colombia and Cartagena.

Steamers call at Kingston on way to New York, and load cargo for United Kingdom and Continental ports.

Caribbean Steamship Co., Ltd., 8–10 Bridge St., New York, U.S.A.

General Agent, Kingston—H. Macaulay Orrett.

SOCIETE GENERALE DE TRANSPORTS MARITIMES A VAPEUR.

Head Offices—70 Rue de la Republique, Marseilles.

Agents in the United States—Norton, Lilly & Company, 26 Beaver Street, New York City.

This Company has established a regular monthly cargo service from Marseilles (France), Genoa, Alicante, La Guayra (Venezuela), Cartagena, thence to Havana, New Orleans, and return to Marseilles, Genoa and Barcelona via Port au Prince (Hayti.)

It has also a service every 60 days from Marseilles, Genoa, Barcelona, Alicante, San Juan (Porto Rico), Santiago (Cuba) to Kingston, thence to Colon, Panama, La Libertad (Salvador), Acapulco (Mexico), San Deigo and San Francisco (California), Vancouver, Seattle, Portland, thence to Colon, calling again at Kingston and returning to Marseilles and Genoa via Santo Domingo and Ponce (Porto Rico).

Representative in Jamaica:—Frank E. Lyons, 12 Port Royal St., Kingston, Jamaica.

WEST INDIAN STEAMSHIP COMPANY, LTD.

Incorporated under the Laws of Jamaica.

To engage generally in the shipping business between Jamaica, Cuba, Hayti, Panama, New York and England.

Miss Victoria Smith, Secretary, 73 Orange Street, Kingston, Jamaica.

CANADIAN PACIFIC STEAMSHIP LINE.

Steamers of the above line, the "Sicilian" (9,000 tons nett.) and the "Montezuma" (3,800 tons nett.), maintain a fortnightly service with Boston and St. John, N.B., via Havana, taking through freight to London, Liverpool, Southampton, Glasgow and Avonmouth.

George & Branday, Agents, Kingston.

EASTERN ASIATIC STEAMSHIP COMPANY.

The Motor Ship "Virginia" will call at Jamaica monthly from St. Thomas, W.I., to load cargo for all European ports, for transhipment at St Thomas, and will call at Port-au-Prince and St. Marc on her way to St. Thomas. Deck passengers accepted. For rates and all other information apply to:

Agents in Kingston—F. L. Myers & Son,

XX.—HOTELS, LODGING HOUSES AND LIVERY STABLES.

A List of hotels and lodging houses in the several parishes of the island is given below, with a list of livery-stable keepers and motor car garages attached.

Parish Town.	Hotels or Lodging Houses.	Livery Stable Keepers or Garages
Kingston—	Myrtle Bank Hotel (United Fruit Co.)	H. E. Bolton
	South Camp Rd Hotel (R. H. Vernon.)	Kingston Industrial Garage
	The Grenville, 112 East St. (Miss Farquharson)	Motor Car Supplies, Ltd.
	Waldeck Hotel, 92 East St. (Mrs. G. B. McDougal.)	The Mutual Garage
	Doric, 96 East St. (R. and E. Hendry)	Dando Motor Service
	Earl's Court, 18 North St. (Mrs. Cooke.)	Jonas's Garage
	Melrose House, 117 Duke St. (R. W. Fraser.)	A. McDougal
	65 Hanover Street (Miss Garcia.)	F. L. Hollar
	78 East Street (H. H. Quallo.)	
	68 Hanover Street (R. Logan.)	
	83 Harbour Street (Mrs. Mary DePass)	
	York House, 80 East St. (Mrs. Dixon.)	
St. Andrew—		
Constant Spring	Constant Spring Hotel (H. A. Evelyn.)	H. E. Bolton
	Mona (Mrs. F. L. Austin)	A. McDougal
	Cedar Hurst, Spring Hill P. O. (Mrs. Francis.)	F. L. Hollar

PARISH TOWN.	HOTELS OR LODGING HOUSES.	LIVERY STABLE KEEPERS OR GARAGES.
ST. THOMAS—		
Bath	The Bath (Miss Evans.)	
Morant Bay	Mrs. Caroline Chaplin, (Highbury Road.)	J. E. K. Davis
	Miss Bartlett, (The Crotons.)	L. Joseph
PORTLAND—	Titchfield	
Port Antonio	Waverly.	E. Gaynor
	Surrey (Mrs. Scott.)	C. Pine
		I. Cousins
Buff Bay	Mrs. Crossley.	E. Simpson
		E. Black
ST. MARY—		
Port Maria	Mrs. Jones	I. Saunders
		H. R. Henderson
	Mrs. Parodie.	W. Ellis
Annotto Bay	Savoy Hotel, Murad Bros.	
	Mrs. Helps.	
Richmond	Mrs. Lewis.	
ST. ANN—		
St. Ann's Bay	Hotel (Benjamin Oliphant)	L. L. Fraser
		F. Brown
Moneague	Hotel (Benjamin Oliphant)	Miss Pursell
		H. E. Thomas
Holly Mount	Hotel (Miss E. Hart and Geo. Hunt.)	L. Smith
		A. A. Hutchinson
		L. Campbell
Claremont	Mrs. F. W. T. Roberts	T. L. Trewick
Brown's Town	Mrs. Mary Thompson	
	Miss Emma Falden.	
TRELAWNY—		A. Campbell
		W. T. Brown
Falmouth	Mrs. Messado, (Crown Lodgings.)	T. Ho Song
		H. L. Chin
		H. Young

PARISH TOWN.	HOTELS OR LODGING HOUSES.	LIVERY STABLE KEEPERS OR GARAGES.
ST. JAMES—		
Montego Bay*	Montego Bay Hotel.	P. N. McLean
	Mrs. Jervis	C. A. Wallace
	Miss Solomon	T. Richardson
		L. A. Peterkin
HANOVER—		
	Bridge House (W. Dixon.)	J. Brown
		Mrs. C. S. Kenny
		L. A. Shagoury
		L. N. Clare
WESTMORELAND—		
Mackfield	Mrs. Munroe	G. A. Lewis
Savanna-la-Mar	Miss Felicia Ramsay	H. Messias
	Miss Facey	C. Forrester
	Mrs. Hendricks	J. Williams
	A. W. Petgrave.	L. Gray
		H. C. Farquharson
ST. ELIZABETH—		
Balaclava	Miss Roberts	
Black River	Miss Orinthia Rowe	J. A. Muschett
Santa Cruz	Miss Doran	Magnus & Co.
Malvern	Mrs. Lawrence.	C. Nash
Siloah	Mrs. Falden.	A. Lewis
Newmarket	Mrs. Ford.	Mrs. Mullings
Black River	Mrs. Blanche Levy	Lawrence & Co.
	Mrs. Nairne.	J. Lewis
		W. C. Morris
MANCHESTER—		
Mandeville	Newleigh (H. Oliphant.)	G. H. Munton
		L. Peart
	Mandeville Hotel (E. H. Bell.)	W. Brown
		T. Hall
	Bloomfield Hotel (Miss Alice Kennedy)	H. A. Palmer
		T. A. Talbot

*Tourists and others requiring private lodgings are requested to communicate with S. Hart & Son, Montego Bay.

PARISH. TOWN.	HOTELS OR LODGING HOUSES.	LIVERY STABLE KEEPOR GARAGES.
Manchester (Contd.)		
Mandeville	Arcadia House (Mrs. Hendricks.) Alexandria Cottage (Miss A. A. Alexander.) Emerald Cottage (Mrs. Copeland.) Nashville (Miss Glanville) Renfrew Cottage (Miss Senior.) Balinganar (Miss A. Wheatle.) Halsham (Miss A. Hendricks) Grafton (Miss M. Clark.) Newry Cottage (Miss Alice Kennedy) Mrs. Alice Anderson.	R. Delapenha A. Morgan
Christiana	Miss Ellen Mullings Miss R. J. Townsend.	
CLARENDON—		
Milk River	The Bath House, (Miss Smythe.)	The Bath House
May Pen	A. A. Levy	E. Charlton B. Lopez
Chapelton	Miss Peart Miss Catherine Miller.	W. Gordon T. Doyen
Spaldings	John Hay. Miss Georgiana Smith	DeRoux Blackwood Bloomfield O. Blackwood I. G. Campbell Isaacs
ST. CATHERINE—		
Spanish Town	35 Manchester St. (Samuel Griffiths.) 27 White Church St. (Mrs. Fletcher.)	———

PARISH. TOWN.	HOTELS OR LODGING HOUSES.	LIVERY STABLE KEEPER OR GARAGES.
St. Catherine (Cont.)		
Spanish Town	14 Martin Street (J. H. Stewart.)	
	33 Martin St. (Geo. Thompson.)	
	36 White Church St. (Mrs. Z. Thompson)	———
Linstead	Campbell Hotel (Wilhelmina Jackson)	
Ewarton	Miss Mary Martin.	
Old Harbour	New Market Pen (Miss E. Harrison)	

TIME TABLES (liable to alteration without notice.)

MONTEGO BAY LINE

Stations.	Departure Daily except Sunday.	Departure Daily except Sunday.	Departure Daily except Sunday.	Distance from Kingston Miles.
Kingston ..	7.25 a.m.	10.45 a.m.	4.15 p.m.	—
Gregory Park ..	7.42 „	11.05 „	4.32 „	6¾
Grange Lane ..	7.50 „	11.13 „	4.40 „	9¼
Spanish Town ..	*8.03 „	11.25 „	* 4.51 „	11¾
Hartlands ..	8.15 „	11.35 „	5.02 „	15
Bushy Park ..	8.27 „	11.47 „	5.14 „	20
Old Harbour ..	8.38 „	11.58 „	5.25 „	22¾
May Pen ..	9.09 „	12.28 p.m.	5.56 „	32¾
Four Paths ..	9.21 „	12.40 „	6.08 „	37
Clarendon Park .	9.40 „	1.00 „	6.26 „	42¼
Porus ..	Ar. 9.52 „	1.13 „	6.39 „	46¾
Williamsfield (for Mandeville) ..	..	1.44 „	7.15 „	53
Kendal ..	..	1.55 „	Ar. 7.23 „	55
Greenvale ..	..	2.20 „	..	61
Balaclava ..	..	3.03 „	..	70½
Appleton ..	Wednesdays only	3.27 „	..	77
Maggotty ..	..	3.38 „	..	80
Ipswich ..	..	4.06 „	..	86
Stonehenge siding		4.28 „	..	90¾
Catadupa ..	8.15 a.m.	4.42 „	..	94
Cambridge ..	8.40 „	5.00 „	..	98
Montpelier ..	9.02 „	5.25 „	..	103
Anchovy ..	9.15 „	5.38 „	..	106
Montego Bay ..	Ar. 9.40 „ Wednesdays only	Ar. 6.00 „	..	112¾
Montego Bay ..	4.30 p.m.	7.30 a.m.	..	
Anchovy ..	4.58 „	7.56 „	..	
Montpelier ..	5.20 „	8.13 „	..	
Cambridge ..	5.44 „	8.34 „	..	
Catadupa ..	Ar. 6.00 „	8.54 „	..	
Stonehenge siding	..	9.06 „	..	
Ipswich ..	..	9.26 „	..	
Maggotty ..	Daily except Sun.	9.49 „	..	
Appleton ..	..	10.05 „	..	
Balaclava ..	..	10.37 „	..	
Greenvale ..	..	11.24 „	..	
Kendal ..	6.00 a.m.	11.51 „	..	
Williamsfield (for Mandeville) ..	6.12 „	12.09 p.m.	..	
Porus ..	6.37 „	12.37 „	3.20 p.m.	
Clarendon Park .	6.53 „	12.54 „	3.36 „	
Four Paths ..	7.07 „	1.08 „	3.50 „	
May Pen ..	†7.25 „	† 1.26 „	† 4.11 „	
Old Harbour ..	7.52 „	1.55 „	4.39 „	
Bushy Park ..	8.00 „	2.03 „	4.47 „	
Hartlands ..	8.12 „	2.16 „	5.03 „	
Spanish Town ..	8.26 „	‡ 2.31 „	5.22 „	
Grange Lane ..	8.35 „	2.41 „	5.31 „	
Gregory Park ..	8.44 „	2.50 „	5.39 „	
Kingston ..	Ar. 9.00 „	Ar. 3.05 „	Ar. 5.55 „	

*Re-book for Ewarton Line. †Re-book for Rio Minho Valley Branch.
‡Re-book for Ewarton and Port Antonio Lines.

These Tables are liable to alteration without notice.

RIO MINHO VALLEY BRANCH.

Trains from Kingston.	Daily except Sunday.	Daily except Sunday.	Distance from Kingston Miles.
Kingston ..	Dep. 7.25 a.m.	Dep. 4.15 p.m.	—
Gregory Park ..	7.42 „	4.32 „	6¾
Grange Lane ..	7.50 „	4.40 „	9¼
Spanish Town ..	8.03 „	4.51 „	11¾
Hartlands ..	8.15 „	5.02 „	15
Bushy Park ..	8.27 „	5.14 „	20
Old Harbour ..	8.38 „	5.25 „	22¾
May Pen ..	9.15 „	6.00 „	32¾
Suttons ..	10.00 „	6.45 „	42¾
Chapelton ..	Ar. 10.12 „	Ar. 6.57 „	46
Trains to Kingston.			
Chapelton ..	Dep. 6.20 a.m.	Dep. 3.10 p.m.	
Suttons ..	6.40 „	3.30 „	
May Pen ..	7.25 „	4.11 „	
Old Harbour ..	7.52 „	4.39 „	
Bushy Park ..	8.00 „	4.47 „	
Hartlands ..	8.12 „	5.03 „	
Spanish Town ..	8.26 „	5.22 „	
Grange Lane ..	8.35 „	5.31 „	
Gregory Park ..	8.44 „	5.39 „	
Kingston ..	Ar. 9.00 „	Ar. 5.55 „	

These Tables are liable to alteration without notice.

PORT ANTONIO LINE AND EWARTON BRANCH.

	Daily except Sunday.	Daily except Sunday.	Saturdays only.	Sundays only.		Distance from Kingston — Miles.
Kingston ..	2.15 p.m.	..	..	7.15 a.m.	2.20 p.m.	—
Gregory Park ..	2.32 „	..	..	7.32 „	2.37 „	6¾
Grange Lane ..	2.42 „	..	..	7.42 „	2.47 „	9¼
Spanish Town ..	2.54 „	..	..	7.54 „	2.59 „	11¾
Bog Walk ..	3.22 „	..	..	8.22 „	3.27 „	20½
Riversdale ..	3.39 „	..	..	8.39 „	3.44 „	27
Troja ..	3.57 „	..	..	8.58 „	4.02 „	31
Richmond ..	4.20 „	..	..	9.20 „	4.25 „	36
Highgate Siding	4.30 „	..	..	9.30 „	4.35 „	38¼
Albany ..	4.47 „	..	..	9.47 „	4.52 „	42½
Belfield Siding ..	4.58 „	..	..	9.58 „	5.03 „	46
Annotto Bay ..	5.13 „	..	..	10.13 „	5.18 „	50
Windsor Castle Siding ..	5.27 „	..	..	10.27 „	5.32 „	54½
Buff Bay ..	5.40 „	..	8.36 a.m.	10.40 „	5.45 „	58¾
Orange Bay ..	5.50 „	..	8.47 „	10.50 „	5.55 „	61¾
Hope Bay ..	6.05 „	..	9.04 „	11.05 „	6.10 „	66¼
St.Margaret's Bay	6.16 „	..	9.16 „	11.16 „	6.21 „	69½
Port Antonio ..	6.35 Ar.	..	9.35 Ar.	11.35 Ar.	6.40 Ar.	74¾
			Daily ex	cept Sunday		
Kingston ..	7.25 a.m.	2.15 p.m.	4.15 p.m.	..	..	—
Gregory Park ..	7.42 „	2.32 „	4.32 „	..	..	6¾
Grange Lane ..	7.50 „	2.42 „	4.40 „	..	..	9¼
Spanish Town ..	8.30 „	2.54 „	5.35 „	..	..	11¾
Bog Walk ..	8.58 „	3.26 „	6.15 „	..	..	20½
Linstead ..	9.10 „	3.39 „	6.40 „	..	..	24
Ewarton ..	9.25 Ar.	3.53 Ar.	7.00 Ar.	..	..	29
	..		Saturdays	only.		
Port Antonio ..	..	7.00 a.m.	4.20 p.m.	6.15 a.m.	2.00 p.m.	
St.Margaret's Bay	..	7.19 „	4.41 „	6.34 „	2.19 „	
Hope Bay ..	..	7.29 „	4.53 „	6.44 „	2.29 „	
Orange Bay ..	..	7.44 „	5.10 „	6.59 „	2.44 „	
Buff Bay ..	..	7.55 „	5.19 Ar.	7.10 „	2.55 „	
Windsor Castle Siding ..	..	8.07 „	..	7.22 „	3.07 „	
Annotto Bay ..	..	8.22 „	..	7.37 „	3.22 „	
Belfield Siding ..	..	8.36 „	..	7.51 „	3.36 „	
Albany ..	..	8.48 „	..	8.03 „	3.48 „	
Highgate Siding	..	9.07 „	..	8.22 „	4.07 „	
Richmond ..	..	9.21 „	..	8.36 „	4.21 „	
Troja ..	..	9.42 „	..	8.57 „	4.42 „	
Riversdale ..	..	9.59 „	..	9.14 „	4.59 „	
Bog Walk ..	..	10.19 „	..	9.34 „	5.19 „	
Spanish Town ..	..	10.46* „	..	10.01 „	5.46 „	
Grange Lane ..	..	10.56 „	..	10.11 „	5.56 „	
Gregory Park ..	..	11.04 „	..	10.19 „	6.04 „	
Kingston ..	..	11.20 Ar.	..	10.35 Ar.	6.20 Ar.	
			Daily ex	cept Sunday		
Ewarton ..	9.46 a.m.	4.15 p.m.	6.15 a.m.	..	..	
Linstead ..	10.04 „	4.33 „	6.40 „	..	..	
Bog Walk ..	10.19 „	4.48 „	7.12 „	..	..	
Spanish Town ..	10.46 „	5.22 „	8.26 „	..	..	
Grange Lane ..	10.56 „	5.31 „	8.35 „	..	..	
Gregory Park ..	11.04 „	5.39 „	8.44 „	..	..	
Kingston ..	11.20 Ar.	5.55 Ar.	9.00 Ar.	..	..	

*Re-Book for Montego Bay.

PASSENGER FARES—MONTEGO BAY AND RIO MINHO VALLEY BRANCH.

Station	Class	Kingston	Gregory Park	Grange Lane	Spanish Town	Hartlands	Bushy Park	Old Harbour	May Pen	Suttons
Kingston	1st	-	1/9	-	-	-	-	-	-	-
	2nd	-	11d.	-	-	-	-	-	-	-
Gregory Park	1st	1/9	-	-	-	-	-	-	-	-
	2nd	11d.	-	-	-	-	-	-	-	-
Grange Lane	1st	1/4	1/9	-	-	-	-	-	-	-
	2nd	1/9	11d.	-	-	-	-	-	-	-
Spanish Town	1st	3/6	1/9	1/9	-	-	-	-	-	-
	2nd	1/9	11d.	11d.	-	-	-	-	-	-
Hartlands ..	1st	4/5	2/8	1/9	1/9	-	-	-	-	-
	2nd	2/3	1/4	11d.	11d.	-	-	-	-	-
Bushy Park ..	1st	6/2	4/1	3/3	2/8	1/9	-	-	-	-
	2nd	3/1	2/1	1/8	1/4	11d.	-	-	-	-
Old Harbour	1st	7/	5/3	4/1	3/6	2/4	1/9	-	-	-
	2nd	3/6	2/8	2/1	1/9	1/2	11d.	-	-	-
May Pen ..	1st	9/8	7/7	7/	6/2	5/3	3/10	2/11	-	-
	2nd	4/10	3/10	3/6	3/1	2/8	1/11	1/6	-	-
Suttons ..	1st	12/7	10/6	9/11	9/1	8/2	6/9	5/10	2/11	-
	2nd	6/4	5/3	5/	4/7	4/1	3/5	2/11	1/6	-
Chapelton ..	1st	13/5	11/5	10/10	9/11	9/1	7/7	6/9	3/10	1/9
	2nd	6/9	5/9	5/5	5/	4/7	3/10	3/5	1/11	11d.
Four Paths ..	1st	10/10	9/1	8/2	7/7	6/5	5/	4/5	1/9	-
	2nd	5/5	4/7	4/1	3/10	3/3	2/6	2/3	11d.	-
Clarendon Park	1st	12/7	10/6	9/11	9/1	8/2	6/9	5/10	2/11	-
	2nd	6/4	5/3	5/	4/7	4/1	3/5	2/11	1/6	-
Porus ..	1st	14/	12/	11/1	10/3	9/4	7/11	7/	4/5	-
	2nd	7/	6/	5/7	5/2	4/8	4/	3/6	2/3	-
Williamsfield	1st	15/6	13/9	12/10	12/3	11/1	9/8	9/1	6/2	-
	2nd	7/9	6/11	6/5	6/2	5/7	4/10	4/7	3/1	-
Kendal ..	1st	16/1	14/4	13/5	12/7	11/8	10/3	9/4	6/9	-
	2nd	8/1	7/2	6/9	6/4	5/10	5/2	4/8	3/5	-
Greenvale ..	1st	17/10	16/1	15/2	14/7	13/5	12/	11/5	8/6	-
	2nd	8/11	8/1	7/7	7/4	6/9	6/	5/9	4/3	-
Balaclava ..	1st	20/9	19/	18/1	17/3	16/4	14/11	14/	11/5	-
	2nd	10/5	9/6	9/1	8/8	8/2	7/6	7/	5/9	-
Appleton ..	1st	22/6	20/9	19/10	19/	18/1	16/8	15/9	13/2	-
	2nd	11/3	10/5	9/11	9/6	9/1	8/4	7/11	6/7	-
Maggotty ..	1st	25/1	23/4	22/6	21/7	20/9	19/3	18/5	15/9	-
	2nd	12/7	11/8	11/3	10/10	10/5	9/8	9/3	7/11	-
Ipswich ..	1st	25/1	23/4	22/6	21/7	20/9	19/3	18/5	15/9	-
	2nd	12/7	11/8	11/3	10/10	10/5	9/8	9/3	7/11	-
Catadupa ..	1st	27/5	25/8	24/10	24/3	23/1	21/7	21/	18/1	-
	2nd	13/9	12/10	12/5	12/2	11/7	10/10	10/6	9/1	-
Cambridge ..	1st	28/7	26/10	26/	25/1	24/3	22/9	21/11	19/3	-
	2nd	14/4	13/5	13/	12/7	12/2	11/5	11/	9/8	-
Montpelier ..	1st	13/1	28/4	27/5	26/10	25/8	24/3	23/8	20/9	-
	2nd	15/1	14/2	13/9	13/5	12/10	12/2	11/10	10/5	-
Anchovy ..	1st	30/11	28/11	28/4	27/5	26/7	25/1	24/3	21/4	-
	2nd	15/6	14/6	14/2	13/9	13/4	12/7	12/2	10/8	-
Montego Bay	1st	31/6	31/3	30/4	29/6	28/7	27/2	26/3	23/8	-
	2nd	15/9	15/8	15/2	14/9	14/4	13/7	13/2	11/10	-
Bog Walk ..	1st	6/2	4/1	3/6	2/8	-	-	-	-	-
	2nd	3/1	2/1	1/9	1/4	-	-	-	-	-
Linstead ..	1st	7/	5/3	4/5	3/6	-	-	-	-	-
	2nd	3/6	2/8	2/3	1/9	-	-	-	-	-
Ewarton ..	1st	8/9	6/9	5/10	5/3	-	-	-	-	-
	2nd	4/5	3/5	2/11	2/8	-	-	-	-	-

PASSENGER FARES—MONTEGO BAY AND RIO MINHO VALLEY BRANCH—Continued.

Station	Class	Chapelton	Four Paths	Clarendon Park	Porus	Williamsfield	Kendal	Greenvale	Balaclava	Appleton
Clarendon Park	1st	-	1/9	-	-	-	-	-	-	-
	2nd	-	11d.	-	-	-	-	-	-	-
Porus ..	1st	-	2/11	1/9	-	-	-	-	-	-
	2nd	-	1/6	11d.	-	-	-	-	-	-
Williamsfield	1st	-	4/8	3/3	2/1	-	-	-	-	-
	2nd	-	2/4	1/8	1/1	-	-	-	-	-
Kendal ..	1st	-	5/3	3/10	2/4	1/9	-	-	-	-
	2nd	-	2/8	1/11	1/2	11d.	-	-	-	-
Greenvale ..	1st	-	7/	5/7	4/5	2/4	2/1	-	-	-
	2nd	-	3/6	2/9	2/3	1/2	1/1	-	-	-
Balaclava ..	1st	-	9/11	8/6	7/	5/3	4/8	2/11	-	-
	2nd	-	5/	4/3	3/6	2/8	2/4	1/6	-	-
Appleton ..	1st	-	11/8	10/3	8/9	7/	6/5	4/8	1/9	-
	2nd	-	5/10	5/2	4/5	3/6	3/3	2/4	11d.	-
Maggotty ..	1st	-	14/3	12/10	11/5	9/8	9/1	7/4	4/5	2/8
	2nd	-	7/2	6/5	5/9	4/10	4/7	3/8	2/3	1/4
Ipswich ..	1st	-	14/3	12/10	11/5	9/8	9/1	7/4	4/5	2/8
	2nd	-	7/2	6/5	5/9	4/10	4/7	3/8	2/3	1/4
Catadupa ..	1st	-	16/8	15/2	14/	11/11	11/8	9/8	7/	5/3
	2nd	-	8/4	7/7	7/	6/	5/10	4/10	3/6	2/8
Cambridge ..	1st	-	17/10	16/4	14/11	13/2	12/7	10/10	7/11	6/2
	2nd	-	8/11	8/2	7/6	6/7	6/4	5/5	4/	3/1
Montpelier ..	1st	-	19/3	17/10	16/8	14/7	14/4	12/3	9/8	7/11
	2nd	-	9/8	8/11	8/4	7/4	7/2	6/2	4/10	4/
Anchovy ..	1st	-	20/2	18/8	17/3	15/6	14/11	13/2	10/3	8/6
	2nd	-	10/1	9/4	8/8	7/9	7/6	6/7	5/2	4/3
Montego Bay	1st	-	22/2	20/9	19/3	17/6	16/11	15/2	12/3	10/6
	2nd	-	11/1	10/5	9/8	8/9	8/6	7/7	6/½	5/3

PASSENGER FARES—MONTEGO BAY AND RIO MINHO VALLEY BRANCH—Continued.

Station	Class	Maggotty	Ipswich	Catadupa	Cambridge	Montpelier	Anchovy	Montego Bay	Bog Walk	Linstead
Maggotty ..	1st	-	-	-	-	-	-	-	-	-
	2nd	-	-	-	-	-	-	-	-	-
Ipswich ..	1st	2/8	-	-	-	-	-	-	-	-
	2nd	1/4	-	-	-	-	-	-	-	-
Catadupa ..	1st	5/3	2/8	-	-	-	-	-	-	-
	2nd	2/8	1/4	-	-	-	-	-	-	-
Cambridge ..	1st	6/2	3/6	1/9	-	-	-	-	-	-
	2nd	3/1	1/9	11d.	-	-	-	-	-	-
Montpelier ..	1st	7/11	5/3	2/8	1/9	-	-	-	-	-
	2nd	4/	2/8	1/4	11d.	-	-	-	-	-
Anchovy ..	1st	8/6	5/10	3/6	2/4	1/9	-	-	-	-
	2nd	4/3	2/11	1/9	1/2	11d.	-	-	-	-
Montego Bay	1st	10/6	7/11	5/7	4/5	2/11	2/4	-	-	-
	2nd	5/3	4/	2/10	2/3	1/6	1/2	-	-	-
Bog Walk ..	1st	-	-	-	-	-	-	-	-	-
	2nd	-	-	-	-	-	-	-	-	-
Linstead ..	1st	-	-	-	-	-	-	-	1/9	-
	2nd	-	-	-	-	-	-	-	11d.	-
Ewarton ..	1st	-	-	-	-	-	-	-	2/8	1/9
	2nd	-	-	-	-	-	-	-	1/4	11d.

PASSENGER FARES—PORT ANTONIO LINE.

Station	Class	Kingston	Gregory Park	Grange Lane	Spanish Town	Bog Walk	Riversdale	Troja	Richmond
Gregory Park ..	1st	1/9	-	-	-	-	-	-	-
	2nd	11d.	-	-	-	-	-	-	-
Grange Lane ..	1st	2/8	1/9	-	-	-	-	-	-
	2nd	1/4	11d.	-	-	-	-	-	-
Spanish Town .	1st	3/6	1/9	1/9	-	-	-	-	-
	2nd	1/9	11d.	11d.	-	-	-	-	-
Bog Walk ..	1st	6/2	4/1	3/6	2/8	-	-	-	-
	2nd	3/1	2/1	1/9	1/4	-	-	-	-
Riversdale ..	1st	7/11	5/10	5/3	4/5	1/9	-	-	-
	2nd	4/	2/11	2/8	2/3	11d.	-	-	-
Troja ..	1st	9/1	7/4	6/5	5/7	3/3	1/9	-	-
	2nd	4/7	3/8	3/3	2/10	1/8	11d.	-	-
Richmond ..	1st	10/6	8/9	7/11	7/	4/8	2/11	1/9	-
	2nd	5/3	4/5	4/	3/6	2/4	1/6	11d.	-
Highgate ..	1st	12/3	10/6	9/8	9/1	6/5	4/8	3/6	2/1
	2nd	6/2	5/3	4/10	4/7	3/3	2/4	1/9	1/1
Albany ..	1st	12/3	10/6	9/8	9/1	6/5	4/8	3/6	2/1
	2nd	6/2	5/3	4/10	4/7	3/3	2/4	1/9	1/1
Annotto Bay ..	1st	14/7	12/10	12/	11/1	8/9	7/	5/7	4/1
	2nd	7/4	6/5	6/	5/7	4/5	3/6	2/10	2/1
Buff Bay ..	1st	17/3	15/2	14/7	13/9	11/1	9/4	8/2	6/9
	2nd	8/8	7/7	7/4	6/11	5/7	4/8	4/1	3/5
Orange Bay ..	1st	18/1	16/1	15/6	14/7	12/	10/3	9/1	7/7
	2nd	9/1	8/1	7/9	7/4	6/	5/2	4/7	3/10
Hope Bay ..	1st	19/3	17/6	16/8	16/1	13/5	11/8	10/6	9/1
	2nd	9/8	8/9	8/4	8/1	6/9	5/10	5/3	4/7
St. Margaret's Bay ..	1st	20/5	18/5	17/10	16/11	14/4	12/7	11/5	9/11
	2nd	10/3	9/3	8/11	8/6	7/2	6/4	5/9	5/
Port Antonio ..	1st	21/	20/2	19/3	18/8	16/1	14/4	13/2	11/8
	2nd	10/6	10/1	9/8	9/4	8/1	7/2	6/7	5/10
Linstead ..	1st	7/	5/3	4/5	3/6	1/9	-	-	-
	2nd	3/6	2/8	2/3	1/9	11d.	-	-	-
Ewarton ..	1st	8/9	6/9	5/10	5/3	2/8	-	-	-
	2nd	4/5	3/5	2/11	2/8	1/4	-	-	-

PASSENGER FARES—PORT ANTONIO LINE—Continued.

Station	Class	Highgate	Albany	Annotto Bay	Buff Bay	Orange Bay	Hope Bay	St. Margaret's Bay	Linstead
Highgate ..		-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
Albany ..	1st	2/1	-	-	-	-	-	-	-
	2nd	1/1	-	-	-	-	-	-	-
Annotto Bay ..	1st	4/1	2/4	-	-	-	-	-	-
	2nd	2/1	1/2	-	-	-	-	-	-
Buff Bay ..	1st	6/9	5/	2/8	-	-	-	-	-
	2nd	3/5	2/6	1/4	-	-	-	-	-
Orange Bay ..	1st	7/7	5/10	3/6	1/9	-	-	-	-
	2nd	3/10	2/11	1/9	11d.	-	-	-	-
Hope Bay ..	1st	9/1	7/	5/	2/4	1/9	-	-	-
	2nd	4/7	3/6	2/6	1/2	11d.	-	-	-
St. Margaret's Bay ..	1st	9/11	8/2	5/10	3/3	2/8	1/9	-	-
	2nd	5/	4/1	2/11	1/8	1/4	11d.	-	-
Port Antonio ..	1st	11/8	9/8	7/7	5/	4/1	2/8	1/9	-
	2nd	5/10	4/10	3/10	2/6	2/1	1/4	11d.	-
Linstead ..		-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
Ewarton ..	1st	-	-	-	-	-	-	-	1/9
	2nd	-	-	-	-	-	-	-	11d.

XXII.—Number and Tonnage of Sailing Vessels of each Nation Entered and Cleared at Ports in the Colony of Jamaica in the Year, 1920.

Nationality of Vessels.	Entered.		Cleared.	
	Vessels	Tons.	Vessels	Tons.
British	2	1,261	2	1,261
British Possessions	208	17,148	197	16,443
American	39	12,726	37	15,457
Haitian	1	77	1	77
Danish	4	3,152	4	3,152
Norwegian	9	8,481	9	8,481
Cuban	2	134	2	134
Columbian	2	141	2	141
Chilian	2	56	2	56
French	4	2,477	3	2,235
Italian	1	1,023	1	1,023
Panamanian	1	46	2	92
Total	275	46,722	262	48,552

Number and Tonnage of Steam Vessels of Each Nation Entered and Cleared at Ports in the Colony of Jamaica in the Year 1920.

Nationality of Vessels.	Entered.		Cleared.	
	Vessels	Tonnage.	Vessels	Tonnage.
British	287	677,041	286	671,932
American	423	812,351	420	795,302
Danish	1	1,287	1	1,287
Mexican	1	113	1	113
German	1	4,752	1	4,752
French	1	728	1	728
Dutch	8	14,342	8	14,342
Peruvian	1	252	1	252
Cuban	57	19,998	55	19.959
Norwegian	246	194,916	243	192,559
Nicaraguan	6	5,754	6	5,754
	1,032	1,731,534	1,023	1,706,980

XXIII.—General Exports from the Colony of Jamaica in the years ended 31st December 1919 and 1920.

GRAND SUMMARY.

Countries of Final Destination.	1919. Values. Domestic Produce.	1919. Values. Produce other than Domestic.	1920. Values. Domestic Produce.	1920. Values. Produce other than Domestic.
	£	£	£	£
United Kingdom	3,536,963	30,140	3,039,264	9,816
Other Parts of British Empire—				
Antigua	85		120	
Australia	4,452		7,511	
Bahamas	26,480	898	41,537	22,223
Barbados	2,848	797	5,269	
Bermuda	4,337	54	6,585	
British East Africa			244	
British Guiana	2,142		2,298	
British Honduras	924	72	1,458	79
British West Africa	16		877	
Canada	87,729	949	1,561,639	1,659
Cape Colony			44	
Cayman Islands	6,984	13,083	6,315	13,107
Ceylon			3	
Channel Islands	138		49	
Cyprus			23	
Dominica	96		713	
Egypt			788	7
Gibraltar	171		119	
Gold Coast	173			
Grenada	373		894	
Hong Kong	566		1,864	
India	201		459	
Malta	75		3	
Mauritius			31	
Montserrat	105		102	
Morant Cays		7		26
Newfoundland	8,090	283	1,558	3
New Zealand	801		2,180	34
Pedro Cays	2	20		3
Saint Kitts	228		372	
Saint Lucia	126		314	
Saint Vincent	122		385	
Straits Settlement	1,789		5,854	
Tobago			28	
Trinidad	2,879	13	5,342	
Turks Island	2,386	323	1,267	114
Uganda	38			
Total other Parts of the Br. Empire	454,356	16,499	1,659,245	37,255

COUNTRIES OF FINAL DESTINATION.	1919. VALUES. Domestic Produce.	1919. VALUES. Produce other than Domestic.	1920. VALUES. Domestic Produce.	1920. VALUES. Produce other than Domestic.
	£	£	£	£
Foreign Countries—				
United States	1,332,970	9,806	1,988,775	26,470
Argentine	1,759	198	264	
Belgium			24,470	
Brazil	1	291	16	
Chile	107		945	
China	7,247		11,295	
Colombia	1,155	1,511	4,028	3,747
Costa Rica	1,971	6	3,574	11
Cuba	35,979	26,786	15,000	36,068
Danish East Indies	281		951	
Danish West Indies	1000		907	13
Denmark	31,280		7,229	
Dutch Guiana	389		140	
Ecuador			194	
France	79,743	174	167,639	830
Germany			4,234	
Guatemala	1,068		2,308	713
Hayti	722	850	1,241	858
Holland	1,811	465	28,957	
Italy			10,558	
Japan	116			
Martinique			15	
Mexico	31	125	120	98
Nicaragua	936	73	3,066	791
Norway	5,646		3,267	5
Panama	37,879	3,271	37,990	4,669
Peru	224	60		
Porto Rico		107		1,968
San Domingo			19	
San Salvador			229	
Spain	51			
Spanish Honduras	397	141	3,137	329
Sweden			1,729	
Switzerland	2,190		561	
Venezuela				148
Virgin Islands	556		828	26
Total Foreign Countries	1,545,509	43,864	2,323,686	76,744
Total Exports	5,536,828	90,503	7,022,196	123,815

XXIV.—AGRICULTURAL NOTES.

PENKEEPING.

The branch of agriculture which deals principally with the breeding and feeding of live-stock, horses, cattle and sheep, is in Jamaica called penkeeping. It is a very pleasant and healthy occupation for any one with a natural liking for stock.

Cattle Breeding—The island of Jamaica is remarkably suitable for the breeding of cattle and there are large areas of land where magnificent tropical cattle can be reared under economical conditions. The peasantry should be encouraged to add a cow to their belongings wherever it is possible to do so and thus make possible a combination of crop and stock upon which a permanent and successful agriculture can be built up. The number of cattle in the island is capable of considerable increase if the people generally recognised the value and importance of developing live stock as a branch of their ordinary agricultural operations.

The large cattle-pens are and have been from very early days a successful and essential feature of the major industries of the colony and it is now proposed to discuss the most obvious measures calculated to benefit and improve their successful operations.

Cattle are kept and bred for the three purposes of Beef, Draught and Milk, and although it is possible with some sacrifice of efficiency in each direction to combine two or even all three of these objects, it is yet an axiom of cattle breeding that specialization is essential if the best results are to be obtained in the production of beef, of working cattle or of dairy cows.

One of the greatest evils that has crept into the management of Jamaica cattle of the medium or second grade has been that of a lack of specialization and the indiscriminate blending of breeds without due regard to their efficiency in one of the special directions above-mentioned. The use of bulls of nondescript breeding has resulted in serious depreciation and the production of miscellaneous cattle of no outstanding merit and seriously lacking in uniformity of type and quality.

While the industry of breeding ordinary cattle barely pays 6 per cent. on the capital invested, the production of high-class stock if successfully and judiciously managed may be relied on to give an average return of 10 per cent. on the investment involved.

It is an extraordinary fact that all the best and most efficient breeds of beef cattle have been produced in the limited confines of Britain and that no beef breed of cattle of the first class has been evolved in any other part of the world. While sell-

ing of her best to the rest of the world the United Kingdom consistently maintains her herds of pedigree beef cattle in a state of efficiency exceeding that of any other country in the world.

This is due to the natural genius of the British farmer as a stock breeder and to the natural conditions that favour the production of the very highest types of well-developed cattle, shaped for the needs of the butcher and conditioned for the production of meat of the best texture and flavour. It is therefore a truism in the breeding of beef cattle that the closer one can keep to the British Standard in Jamaica, the higher will be the quality of the beef stock.

The large proprietors who have developed the beef cattle of Jamaica have long recognised this fact, and have from time to time imported from England and Scotland bulls of the best breeding of the Shorthorn, Hereford, Black Angus, Devon, Welsh, South Devon and Red Poll breeds, while even the shaggy Highlanders from the North have been tested by enthusiastic Scots resident in Jamaica. The original Spanish settlers in Jamaica introduced Spanish Cattle, red or dun animals of large size with very long horns, slow in growth, of inferior beef quality, but useful in the yoke. These were the foundation material on which the British breeds were subsequently grafted. Experience has, on the whole, indicated that the Red Devon has shown itself the most adaptable to tropical conditions in Jamaica. In the lush guinea-grass pastures of the western end of the island the Hereford has made good, while in the lowlands of the south side the Black Angus has proved itself a fine beef breed.

The Shorthorn has, as a rule, been disappointing and less adaptable than either the Devon, Hereford or Angus breeds, while the Highlanders, the Welsh and the South Devon have not commended themselves for further enterprise in their introduction.

Until quite recently very little had been done to control the cattle ticks in Jamaica, beyond the application of "Tar and Oil" as a smear to congested areas of large ticks on the badly infested animals, and the hand-picking of the engorged ticks in the cattle-pens. The intensification of non-tropical blood in the herds with the consequent increase in the hair of the animals and the tenderness of their skins resulted in a serious increase in the tick-pest under the inadequate system of control generally prevailing on the pens.

The consequence has been that the breeding of high-class beef cattle became commercially unprofitable owing to the serious loss of calves from tick-infection and the slow maturation of the fattening gangs. By the introduction of cheap cattle from Central America about 20 years ago the blood parasite of Tick Fever was introduced into Jamaica, and the tick-pest then became not merely a sucker of the blood and a depreciator of the vital forces of Jamaica cattle but an actual propagator of a parasite which destroyed the

whole blood system of a susceptible animal so as to cause it the most serious loss of condition or even to die of "red-water."

When this disease first spread in Jamaica very serious losses of cattle were incurred and the best bred beef-stock were the most susceptible to the disease. By the control of the ticks within reasonable limits and the natural immunisation of the cattle that survived the attacks of the parasite, the cattle industry surmounted this attack, but the deteriorating influence has remained and even "immune" cattle suffer severely from partial destruction of the blood system when badly infested with the "grass lice" which is the stage of the tick in which the Fever parasite is inoculated into the animal with fresh virulence.

In the first degree, therefore, the improvement of the beef cattle in Jamaica has been hampered by the tick problem and secondly by the widespread prevalence of the Fever parasite wherever cattle are bred in the island. The finest breeds of beef cattle are the most susceptible to tick infestation and the least resistant to the fever-parasite. This fact explains the miserable animals that have frequently resulted from the use of English Shorthorn bulls of the finest breeding on a native herd of cattle.

The half-breds have remained stunted and unthrifty with long staring coats and in many cases have proved vastly inferior to their dams, on which it was sought to effect improvement by the pre-potent and pre-eminent qualities of the premier breed of British cattle, the Shorthorn.

It has been found, for example, that under ordinary commercial conditions of management, 80 per cent. of the Hereford calves have died, whereas, under the same conditions, only 10 per cent. of the progeny of the ordinary tropical cattle with a basis of Zebu blood failed to mature.

The tick-problem, therefore, lies at the root of the improvement of beef cattle in Jamaica.

Since the visit of Professor Newstead in 1910, penkeepers have largely developed the spraying of cattle, and the Deparmental spray of arsenic and paranaph has found a considerable demand for this purpose. One proprietor, who has used this spray consistently on several of his properties, reports that it has enabled him to prime his steers for the butcher in six months' less time than under former conditions of tick-control.

The use of dipping tanks is undoubtedly indicated to be the best solution of the tick problem and Jamaica should now resolutely follow the example of South Africa, Australia and the Southern United States in this direction. It has been demonstrated at the Hope Farm that a tank which is capable of dealing with a large herd of cattle, as designed by Mr. A. H. Ritchie, late Government Entomologist, can be erected at a cost of £45 for labour and materials, while the cost of the Arsenite of Soda for the tank, including some Paranaph, to modify the scalding effect of the

Arsenic on the skin of the cattle, is only 25/ per 1,000 gallons of dipping fluid.

It may be safely asserted that no large enterprise in the rearing and fattening of high-class beef cattle in Jamaica can be adequately equipped without a dipping tank, and it is hoped that a wide extension of dipping will very shortly be taken in hand by all the larger proprietors of cattle in the island.

With regard to the breeds of beef cattle, it has been proved that an element of the Zebu or Indian breeds of cattle is absolutely essential if British cattle are to be hardened sufficiently to "make good" under tropical conditions in Jamaica. These Indian cattle are very inferior from the butcher's point of view and an English breeder would find the whole animal from rump to snout seriously malformed, from the point of view of the best production of the best joints in the most economical compass.

The influence of this blood is, however, so remarkable that one-eighth of Zebu blood is quite enough to give a short-haired character and a darkening of the skin to a composite animal while preserving in a marked degree the beef qualities inherent in the remaining seven-eighths of British blood. The Shorthorns and the Hereford, for example, have a tender, white skin which is very susceptible to the influence of the tropical sun. The Zebu on the other hand, even when externally light-coloured or white, have a black sun-resistant skin.

It is as impossible for a white man to labour in the plains of Jamaica exposed to the full heat of the sun as for a pedigree Shorthorn Steer to thrive in a lowland pasture under similar conditions of solar exposure. We must, therefore, abandon the idea of acclimatising British cattle in the plains of Jamaica in the pure state. It is an attempt to defy the laws of nature and doomed to failure.

On the other hand, the infusion of 10 or 20 per cent. of the tropical blood of the Zebu is fully adequate to give an animal otherwise composed of pure British blood which, while externally conforming quite closely to the British standard of shape and make, has yet the protection of a pigmented skin and of short hair, which tropical conditions demand for the natural well-being of the cattle.

Breeders in possession of old-fashioned beef-herds of British strains are therefore strongly advised to use Bulls of an Indian British cross. One of the leading cattle breeders in the island has adopted this plan with the old-established herds of beef cattle on his properties in St. Ann's with the most remarkable and gratifying results. The herds have been renewed in vigour and size and the steers are now ready for market at least 12 months earlier than heretofore. The practical problem facing the breeder arises in the second stage of this system of breeding.

If Indian-Angus or Indian-Hereford or Indian-Devon bulls be used as a first out-cress on old fashioned Jamaica beef cows, the progeny are bound to be satisfactory, but the question is what to

do next? If a continuation of cross-breeding be adopted from the half and quarter-bred progeny, the Mendelian variations will become evident with the throw-backs to the original types, and there will be a sad lack of uniformity and of real beef-quality in the progeny.

It is asserted with confidence that pure-bred British bulls should be used on the quarter-bred Indian heifers resulting from the first infusion of Indian blood into the beef-herd if a high standard is to be maintained and that one-eighths of Indian blood will be found quite adequate to harden the three-eighths of native and one-half of pure British blood in the resulting generation.

The importation of pedigree bulls for this purpose is out of the question except for proprietors of large pens owing to the first cost of the animals, the grave risk of loss from tick-fever, the expensive maintenance of an imported bull in the tropics and the frequent periods of lack of virility to which an imported sire is liable while subjected to attacks of fever.

It is clearly the business of the Government through its Department of Agriculture to breed pure-bred Bulls from pedigree imported stock. Jamaica-born cattle are more or less immune to fever and can be handled without much extra expense or trouble by the average cattle breeder.

A start has already been made in this direction at the Stock Farm at Hope with the Red Poll and Jersey breeds. Of the former breed 32 bulls, the progeny of imported parents of pedigree stock, and of the latter 27 pedigree bulls have already been distributed to breeders, and the reports to hand show that a large majority of these animals have developed into serviceable sires with a very low proportion of loss and failure.

As funds may be available it is now proposed to develop this enterprise with special reference to the production of pure-bred British Beef Bulls for crossing on the quarter-bred Indian Cattle already referred to.

With regard to the most desirable breeds for this purpose it is probable that Black Angus and Sussex would be two very serviceable breeds at the present juncture. There is already a good deal of Angus blood in some of the best herds and the crosses with Hissar cattle from India are among the finest Beef Cattle yet produced.

The Sussex commends itself largely on the basis of South African experience, while some personal contact with the breed in Kent, where it is highly esteemed for fattening purposes by Hop-growers, to whom farm yard manure is a prime necessity, supports a favourable opinion in favour of Sussex cattle for use in Jamaica.

The Sussex are practically an enlarged edition of the North Devon, darker in colour and in former days of great merit in the yoke, mature steers attaining an enormous size. The cows are never milked and the breed has been developed purely as a beef-

breed in the south eastern section of England. Good stock is obtainable at farmers' prices, and competition with South American millionaires does not at present involve the payment of fancy prices for Sussex cattle of good type.

Hereford and North Devons have already been tried and are quite a success where the conditions are suitable. Some prejudice against the latter, owing to the introduction of a tubercular strain of these cattle some years ago in the west end of the island, still persists. This, however, is an individual failing and not a characteristic defect of the North Devon cattle, and should be avoidable by proper testing and selection of the stock before they are imported. British cattle for export to the tropics can now be tested for Tuberculosis by the Board of Agriculture and Fisheries in England and immunised for tick-fever before despatch.

The old Spanish cattle in Jamaica were useful animals in the yoke, albeit somewhat slow and deliberate in their paces. A residuum of this useful type still remains here and there, particularly where Cuban settlers have established themselves in Jamaica.

Of all the British breeds the Hereford was formerly considered the most useful on the sugar estates for working purposes, although the terrible mortality of cattle that occured when hard times overtook an estate in an unfortunate season showed that Herefords were not really hard enough for severe conditions in the tropics. The introduction of Zebu cattle from India revolutionised the working cattle of Jamaica.

Not only is the Zebu a tropical ox with dark skin affording protection from the tropical sun, and possessing a coat of short hair, but it is also naturally resistant to ticks and to tick-fever. In size, length and scope of limbs and speed and power in the yoke the choicest breeds of the Zebu are far ahead of British cattle for purposes of draught, and their introduction into Jamaica has resulted in an enormous improvement in the efficiency of the native cattle for this purpose.

The chief breeds of Zebu that have left their mark on the native cattle are (a) the Mysore, (b) the Harriana from the Government Farm at Hissar in India, (c) the Gugerat and (d) the Nellore or Ongole.

The Mysore cattle must be regarded as the thoroughbred horse among Indian cattle and are supreme in the essentials of quality for quick draught and endurance in the yoke. Although lighter than the other three breeds mentioned above, the Mysore are supreme in hardness of hoof and spirit, and if it is desired to improve an inferior grade of Zebu cattle to a higher standard for working purposes the Mysore must be regarded as the best for this purpose. Now that the present owner of Montpelier pen is willing to sell pure-bred bulls in the island it should be possible for the Mysore breed to be utilized to great advantage in grading

up second-quality herds of cattle of Indian strain to a higher standard of quality.

The pure-bred Mysore is inclined to be light and less substantial than estate managers would like, but in actual working experience it has been shown that these cattle are the hardiest staunchest and most reliable draught oxen yet tested in the island. Fresh blood from the herds in Mysore is now desirable in order to maintain a high standard of this breed in Jamaica, although experts from India have recorded their opinion that there are finer specimens of the Mysore to be seen at Montpelier in Jamaica than in India itself.

The Harriana breed has proved itself a magnificent outcross on the old-fashioned native cattle of Jamaica, the largest and finest steers ever seen in the island having resulted from this cross.

Mr. Gosset was a pioneer in this direction and the 300 bulls, the progeny of his original importation, which he distributed to other breeders in the island, have to-day achieved a most remarkable triumph in the widespread diffusion of the Harriana blood into herds all over the island.

The Gujerat is a fine well-developed breed of Zebu cattle and some magnificent half-breds have been produced in Jamaica but experience has indicated that under pen conditions in Jamaica this strain is apt to lead to a very excitable and unmanageable type of cattle. The Nellore or Ongole breed of Southern India is in its native land one of the largest breeds of Indian cattle, very docile and specially suitable for heavy draft at a slow pace.

In Jamaica the half-bred progeny of the Nellore have shown a lack of constitution and the cows suffer a good deal during a period of dry weather. This breed has not done so well as the others mentioned above in grading up the cattle of Jamaica while the experience of Mr. Gosset has led him to believe that the Harriana is the best type of Zebu for general use in Jamaica.

Owing to their excitable nature when reared in almost complete freedom on a cattle pen where the handling of an animal is a somewhat rare event in its existence, many breeders have been seeking for a moderating influence on their cattle of Indian blood. The problem is rather a difficult one, as resort to any British breed is bound to reduce the hardness and efficiency of the cattle for severe work in the yoke.

Mr. Gosset has had very encouraging results with one Porto-Rican outcross, although this breed tends somewhat to reduce the size of the Indian cattle. There is, however, a marked accession of docility from the Porto Rican blood, while the vitality of the progeny is so great that the herds have rapidly increased where this strain has been introduced into the Jamaica cattle. A few statistics as to the merits of the ordinary Jamaica cattle of mixed breeds as the result of Mr. Gosset's forty years at Belvidere may be interesting. For the first 13 years he had 120 breeding cows who gave 90

calves or 75 per cent. He however lost on an everage 25 per cent. The next 15 years after he had imported Hissar bulls, he had on an average 157 breeding cows: these gave an average of 116 calves or 72 per cent; he lost by death 8 per cent or about one-third of what the mixed cows lost. The next 12 years after he imported Porto Rican bulls of mixed West African and Spanish breed, he had an average of 171 breeding cows which gave a yearly average of 129 calves or 76 per cent, of which he lost by death 6 per cent. The breeds therefore show a decided advantage for the Porto Rican breed. As the mixed herd of cows shows a nett of 50 per cent of calves. The Indian grades of cows show a nett of 64 per cent of calves. The Porto Rican cows show a nett of 70 per cent of calves.

Another advantage of the Porto Ricans is that they are harder, and require less feeding than the ordinary, and Indian grades, he has therefore been able to run about a hundred head more stock on the same pastures at Belvidere than before. The Porto Rican steers when fattened give very good results, but it is most difficult to estimate their weights when alive, and it is much to the penkeepers' advantage to sell by dead weight if possible. A very interesting experiment was initiated by Mr. Ellis of Fort George, Annotto Bay, in the introduction of two bulls of the "Val di Chiana" breed from Central Italy.

These cattle are highly thought of in Italy for draught purposes and are of remarkable size. Despite their white hair, their skin is dark and they should therefore be resistant to the tropical sun.

It is considered that these cattle are a survival of the very large breed of cattle that formerly existed in Central Europe to which Julius Caesar makes reference.

There is also a theory that when Alexander the Great invaded Northern India he took back to Europe some of the fine Zebu cattle from that country and that traces of this blood are to be found in the modern cattle of the " Val di Chiana" in Italy. The larger bull measured 15 hands 2 inches at 1 year and 11 months, the younger animal 14 hands 1 inch at 12 months. The younger bull gives promise of developing into the finer and more symmetrical animal of the two.

These bulls are being crossed on high-grade Indian heifers and the results should be the production of grade cattle of superior size and substance and of greater docility. The outcome of this experiment is being eargerly awaited by our leading breeders of draft cattle and if the results are satisfactory further importations from Florence will be made.

The improvement of the native dairy cattle of Jamaica can be brought about by a development of the Zebu-Jersey and Zebu-Guernsey races. Very promising results have already been obtained at Hope with the former of these combinations, while a beginning has also been made with the production of the Zebu-Guernsey.

For dual-purpose cattle for the production of beef and milk the Red Poll is also a very promising introduction.

The Red Poll cows at Hope have consistently led all the other breeds, imported and native, in milk production besides being of good beef conformation.

When crossed with good cows of Indian blood some very useful cattle should result from the use of pure-bred Red Poll bulls in Jamaica.

H. H. Cousins.

Horse and Mule Breeding.—The chief centres of horse-breeding in the island are the parishes of St. Ann and St. Elizabeth, the best horses coming from the latter parish. Horses are, however, bred all over the island and seem to do well in every part.

The horses which are bred in Jamaica are famed throughout the West Indies, both as race horses and for their excellent working qualities. When well fed and well groomed they are probably as good as any in the world for hard work. To look at, they are not very taking to the eye, though occasionally one meets a really nice looking horse. Taken as a whole, they are generally undersized and light of bone, goose-rumped, ewe-necked and lacking in "quality". They do not appear to be up to any great amount of weight, yet the work they will do, and the weights they will carry are simply marvellous. For hill work they are especially good. A very noticeable feature about them is their conspicuous soundness. Roaring, as a disease, is unknown in the country, and such hereditary unsoundness as curb, spavin, ringbone, etc., are less often met with than in any other country. This is the more remarkable when one remembers that the roads in Jamaica are like iron all the year round. I think that the fact that Jamaica is almost entirely limestone formation is the reason why the horses are so sound. Another noticeable feature about Jamaica horses is their "kindness" and docility. It is very seldom that we come across a bad-tempered one. This makes them very easy to break and handle, and it is no unusual thing to see a horse that has never been in harness before, hitched up and driven straight off.

There are not many large breeding establishments in the island (in fact I doubt if there is a stud now in existence, which has more than 50 brood mares) but every pen or farm keeps a few brood mares. The usual plan pursued is to breed horses and mules at the same stud. Many mares will not breed mules at all and others only irregularly, so the penkeeper has to take whichever he can get. The mules bred in Jamaica are mostly small, but particularly active and hardy. When well fed, it seems almost impossible to get to the bottom of them. The donkeys used for breeding them are chiefly Maltese and Spanish asses: but it is found that their stock are neither as hardy, nor mature as soon as those got by the Jamaica-bred donkeys. The price of

mules varies according to their size, from £12 to £30. There is always a good demand for them, owing to the banana, orange and logwood trades in which they are used for draft purposes. The large-sized Jamaica mules are equal to those bred anywhere, and, being out of mares that are nearly or quite thoroughbred, possess wonderful stamina and "grit".

The size of horses in Jamaica has been steadily deteriorating for the last 50 years, and this fact, I think, is due to the ever-present and all-pervading ticks, which by the constant irritation and worry which they cause the horses, and especially the young ones, keep them from feeding, and stop their growth. Anyhow the fact remains that 50 years ago we used to breed fine large horses in the country, before the ticks became a plague, but that now we seldom get anything over 15 hands.

The value of horses in Jamaica varies, as it does everywhere else, with the quality of the animal and the purposes for which it is required. The ordinary price for a pair of good 14-2 ponies for polo, riding and driving, ranges from £50 to £80: but ordinary ponies may be bought from £15 to £25. Common mares for breeding purposes are worth £15 to £25, but a pair of well-matched carriage horses standing 15-2 and upwards will fetch £100. The most valuable horse in the country is a thickset, sturdy, general purpose animal, that stands 14-1 to 14.3, that goes in harness and is a good hack. Such a horse will always fetch £20 to £30 and will travel his 40 miles a day in a buggy or under saddle for a week on end, and not show any signs of fatigue. All the heavy draft in the country is done by mules, and in recent years quite a number of heavy Kentucky mules have been imported into the island; but these have not been found to stand the climate well.

Horse and mule-breeding in Jamaica will give a good return for capital invested, but it requires a certain amount of technical knowledge and experience to be brought to bear on it before it can become a success.

Jamaica turns out a very useful class of pony for polo purposes. We cannot boast of ponies good enough for the very best English company, but we can fairly claim that we can produce really good light-weight ponies.

The Jamaica ponies, being all nearly clean bred, can all gallop and are marvellously handy and kind. They lack the weight and size of the English ponies, but their stamina is extraordinary. Polo players in Jamaica have found ponies that they have been able to play polo regularly on, over hard, sun-baked grounds twice a week, and keep on doing this for several years. There are several ponies within my own knowledge which have been playing polo almost without a rest for over ten years and are still playing sound. Recently, Jamaica ponies have met good demand in Trinidad and the other islands, and a Jamaica pony "Dinna Forget," was exported to England and registered as a polo pony stallion there.

The ordinary type of Jamaica 14.2 pony is well up to 11st. at polo in good company. Such ponies can be bought for £25 to £30.—*S. C. Burke.*

With the advent of motor cars horse-breeding has decreased markedly. In 1918 the number of horses recorded in the island was more than twenty per cent less than six years earlier.

The quality of the brood mares in Jamaica is not improving. The plains of St. Elizabeth, especially those round Pedro, were formerly noted for their fine mares: but owing to the continued droughts and the lack of new blood, there has been a considerable deterioration in this class of animal. In former days it was easy to get a pair of evenly matched carriage mares standing sixteen hands and well made in proportion; now it would be almost impossible to secure such a pair in the island.

Owing to the increasing out-put of cane and bananas there has been recently a great demand for mules and now the island is threatened with a serious shortage.

If the country is to continue to supply the necessary haulage considerable attention must be paid to the horse industry. The Department of Agriculture has recently shewn practical interest in the Cattle Industry by co-operating with the larger cattle breeders in importing direct from India pure-bred Indian bulls and heifers which will in the near future improve cattle for haulage purposes. It has been suggested that it would be an equally good move if steps were taken to import suitable mares and stallions from Texas to Jamaica. This would give more bone and weight to the mules and horses; and it has also been pointed out that Jamaica would be able with the American Quarter Horse to produce a stamp of Polo pony which would find a profitable market in New York. There is no doubt that several of the larger horse breeders would welcome any co-operative step in this direction.

Sheep.—The sheep-rearing industry is one of long standing in Jamaica, but it is carried on on entirely different lines to those which exist in other countries. There is no such thing as an actual sheep-farm; the animals are allowed to run with cattle and horse-kind, the care and attention bestowed on them being but scanty.

The breeding of sheep pays so long as one can use the manure or dispose of it to adjacent sugar estates. There is no manure that acts so beneficially on the soil of Jamaica as that of sheep, and some remarkable results have been obtained by its use especially on the red soils.

There are no pure-bred flocks to be found throughout the island; they are made up of an admixture of most breeds, but the tendency now is towards the breeding of Shropshire and Southdown. It is imperative that new blood be introduced every year, otherwise the flocks soon deteriorate; but it is not necessary to

import every year, as exchanges are often made between adjacent sheep-rearers.

The average weight of fat wethers twelve to eighteen months old, runs about 90lbs. live weight, and the current price about 3¼ per lb. live weight; at this price there is a good margin, if some care and attention is bestowed on the animals and an outlet is found for the manure, as flocks are usually penned at night.

Flocks are scattered through the island, doing well everywhere but particularly so in the plains or elevations near the sea-coast to about eight miles inland. Sheep are bred chiefly for mutton and very little account is taken of the wool as only about 2d. per lb. is obtained locally. They are shorn once a year, usually in March, the average weight of a fleece being about 5¼lbs.

To any one taking up pen-keeping in Jamaica the keeping of sheep is certainly recommended and in some cases, such as the cultivation of bananas in the red soils, it is absolutely necessary, as without the aid of manure (the best being that of sheep) the cultivation becomes a total failure on such soil.

Mr. Gosset has tried a good many experiments with sheep, having imported several Hairy Rams of West African Breed, which have been very successful for mutton, but give no wool. They chiefly live on weeds such as sensitive weed, broom weed, etc., and improve the condition of the commons. His last experiment has been with a Fat Rumped or "Hedjaz" Ram brought from Palestine by the Colonel of the West India Regiment. He also seems to live on a diet of weeds, but has wool much like a European sheep.

Dogs.—As a rule thrive well in Jamaica. Those with short hair are more suitable than long haired varieties, especially for the lowlands; fox-terriers, bull-terriers, mastiffs, dachshunds and others do well. Collies and other long-haired dogs live comfortably in the hills. All breeds have a tendency to become weedy, without the introduction of imported blood. Rabies is unknown, but worm in the heart is not an infrequent cause of death.

No dogs are permitted to be imported into Jamaica except from the United Kingdom.

Pigs.—Jamaica is blessed with a very good class of pig stock, thanks largely to the enterprise of the Agricultural Society when it started in 1895, making importations of such breeds as Berkshire, Poland, China and Essex pigs, and distributing these through the country to stand for service. Previously individual planters had made occasional importations, but this one systematic attempt to improve the breeds through the length and breadth of the island transformed the appearance of the ordinary pig stock entirely within a few years.

Pigs thrive easily and are not subject to many diseases in Jamaica. Different types have been developed —the large-bodied pigs that require good feeding such as the Berkshire and Poland China type, and the smaller short-quartered pig commonly called "the China" which can largely find its own feeding if turned out and does not wander much. This type in the past largely kept in pastures among cattle is now almost extinct.

The Government Stock Farm some years ago introduced the breed called Large Black from England—a breed of repute for the amount of lean flesh it yields. In a few years 185 pure-bred "Large Blacks" were supplied to the public, and some very fine pigs have been produced, but, there being no importations since 1913, the type is not very noticeable. Importations of Jersey Reds have recently been made and this fresh blood should add considerably to the value of the industry.

Goats.—These animals thrive easily and naturally in Jamaica especially in the dry districts; they are hardy and on the whole free from disease. They are not animals that can flourish with a heavy rainfall unless sheltered. Goats are largely kept all through Jamaica, but more especially in the dry districts of light rainfall. As is the case with cattle, they have been particularly bred for their flesh, and goat-mutton is in common use throughout the island. The goatskins are also of value and form an increasing article of export from the island. There is not much room for goat farming on a large scale in Jamaica, but there are dry and rocky lands, a few large runs of which might be utilized for the purpose; but although the lands might be got cheaply, substantial capital is required for the fencing necessary to keep these animals within bounds.

Until recent years, among the ordinary native goats very few good milkers were found, it being very exceptional to discover a nanny that would give one quart in twelve hours.

A few importations of Anglo-Nubian, Toggenburg and Anglo-Toggenburg rams were made from England between 1907 and 1910, and the blood is to be found in many parts of the island. There being a serious shortage of milk, the breeding of milch goats is being taken up with some system, and more goats are being kept now for their milk than ever in the past.

Poultry.—There are no large poultry farms in Jamaica as there are in other countries, but, almost everybody keeps some fowls, and large quantities of poultry and eggs are in use on the table.

People in the country far from markets where animals are usually only slaughtered for food on Saturdays, have to depend largely on poultry for their meat. Pure bred poultry have always been imported by fanciers, but since the inauguration of the

Agricultural Society in 1895, pure breeds have been imported in large numbers chiefly—Plymouth Rocks, Leghorns, Minorcas, Orphingtons, Wyandotts and Indian Games. The heavy breeds do better in the uplands and the light breeds in the lowlands. Ducks are plentiful, the most common and best adapted for the country being the Muscovy. The better known breeds elsewhere, Aylesbury, Pekins, Rouens and Indian Runners, are occasionally imported but are not common or truly thrifty. Turkeys thrive easily and are largely kept. Occasionally importations of Bronze turkeys are made from the United States to keep up the size. Guinea Fowls are also common and thrive naturally; until late years there were wild flocks of these, but they are almost extinct now. Domestic pigeons are kept by fanciers and thrive well under ordinary conditions and care. As in the case of other foodstuffs, the demand for poultry and eggs is ever increasing and prices are rising in consequence.

Rabbits, though not popular as food amongst the peasantry, are kept in captivity, and if looked after carefully thrive well.

PLANTING.

Bananas.—There is no doubt Jamaica has advantages over every country in the world for banana cultivation; the vast tracts of virgin land of the Central American republics are all at least two days further from the chief markets of the eastern United States.

Labour in Jamaica is also far cheaper, in fact only about half as expensive as in those countries; Cuba, although a little nearer the best markets for the United States, is happily for Jamaica also that much nearer the north pole. Bananas love heat, moisture and good fat soil. These exist in Jamaica, equally with the other countries above mentioned, as well as the advantages pointed out, which they have not.

The successful banana grower is the man who cultivates his fruit in such a way that it is fit to cut and ship at the time when the fruits of the temperate climates are scarce and dear.

What is wanted in Jamaica to be a successful banana planter is a hard working, highly-trained farmer and businessman; he need not necessarily be of any special nationality, he may be Canadian, American, Scandinavian, Creole or British, but he must understand cultivation of the land, and he must know how to handle labour. The native labourer is pretty much the same as the labourer in any other country, certainly no worse than the labourer of any other country would be under the same circumstances.

The European or American farmer who starts milking his cow at 4 o'clock in the morning and wearily racks up his horse at 9 o'clock at night, will find it no harder to get a day's work for a day's wage in Jamaica, than he does at home; there is no need here to mention names, but it is by no means hard to find to-day in

Jamaica men who have risen to comparative affluence, yet who 25 years ago would have found it very, very hard to raise £500, but since have made all their money out of the Jamaica soil by planting bananas with native labour.

Most of the banana lands require good drainage and high tillage, otherwise the fruit, especially after the first year, becomes small and ripens too late for months when prices rule highest. Jamaica, therefore, is not the only place where nature has to be fought in order to achieve the highest success. Cuba, being further north, gives still more trouble to produce early fruit; in the Central American republics, particularly in Costa Rica, the soil is so constituted that the heavy drought, which usually occurs from Christmas to the middle or end of May, prevents the proper development of the undeniably fine fruit grown in that country.

The disease of bananas, known as Panama Disease, a parasitic soil fungus, although not unknown in Jamaica is, by a rigid system of inspection, in all probability helped by natural causes adverse to the spread of the disease, kept well under control. While in Central America its rapid development is viewed with the greatest alarm.

In Jamaica, with good cultivation, there is practically no fear of fruit being late or small. It must not be inferred that the banana can be successfully grown all over Jamaica any more than any given kind of fruit can all over any other country; but there are still thousands of acres of good land to be bought at moderate prices on which with good cultivation the finest of fruit can be produced. Given a good system of farming and the consequent production of good manure this can be done at a good altitude above sea level on soils of the most healthy description for human beings where Europeans can live in comfort all the year round.

The following figures will give some idea of the cost of planting an acre of bananas on land which, without high cultivation, would have produced nothing as it had for years been under the destructive system of cultivation often practised by the peasantry in growing ginger, sweet potatoes, yams, sugar canes and other crops.—

Forking, first time	£3	0	0	per acre	
Suckers		14	0		
Planting		10	0		
Draining	5	0	0		
Weeding	1	10	0		
Forking, second time	1	0	0	£11	14 0

All the plants on this cultivation gave fruit which was fit to cut during the high-price months, although the planting was done so late as the 23rd April; no plant gave less than an eight-hand bunch, and the proportion of eight-hands was only 4 per cent. The number of plants to the acre is 339. When considering the

cost and profits of planting bananas, the question of planting cocoa cannot be left out, as the only way to successfully establish the latter crop is by planting it through the bananas. If the bananas are well cultivated and not allowed to grow thick enough to injure themselves or the young cocoa plants, cocoa plantations can be established on these lines without costing anything beyond the expense of cultivating the bananas, except of course that plants or seeds would have to be bought. Young cocoa-plants can be bought from the Public Gardens at a half-penny each, delivered at any railway station throughout the island. In no country in the world can cocoa planting be undertaken on such favourable terms. Wherever bananas thrive, cocoa also will thrive, and on much of the land where bananas are planted would scarcely be profitable for a long term of years, bananas will pay for their own cultivation, the establishing of the cocoa cultivation and give a very fair profit besides. Such lands as these can be purchased at a very moderate cost, and in situations where there is no fear of malaria or other disagreeable drawbacks inseparable from living on the very finest and richest lands in most tropical countries.

Anyone wishing to embark in these cultivations should first of all work under some good planter for at least a year even if he has to pay £100 a year for the privilege, as the £100 spent in this way may result in the saving of several thousands.

William Cradwick.

Banana Meal and Figs.—A small trade has been done for some years back in banana meal, but there are difficulties in a tropical climate where it is moist, in making this and shipping it to arrive in a perfect state, so latterly the bananas were only dried and shipped in chip form to be prepared as banana flour abroad.

A small trade was done for several years in evaporated bananas or banana figs, and just before the war this business had been developed.

The industry is worthy of encouragement, as it utilizes bananas grown far from a port, low grade bananas, and Chinese bananas which are immune to Panama disease and renders the small grower independent of the big buyer. The technical difficulties of this product have been successfully surmounted by the manufacturers.

Cassava.—The Cassava Plant (Manihot utiilissima) is one of the universal food plants of the tropics and is able to withstand more variation of elevation (a more important thing than is commonly recognised) soil and rainfall than perhaps any other really useful food plant. Of course, like all others it has its favourite circumstances and given these there is no plant which can produce a greater abundance of food. On the plains of St. Catherine, Clarendon and St. Elizabeth and what little plain Manchester can

boast of, the plant is seen to perfection. Here the Sweet Cassava (Manihot Aipi) gives wonderful yields and the root if cooked when freshly dug furnishes food fit for the Gods. The Bitter Cassava gives even greater yields and is universally preferred for its staple product, Starch. In addition to this, large quantities are grown for food, the roots being converted into meal and finally into cakes of two well known and universally appreciated variety. The thick cakes, locally known as Bammy, are a common article of food among the peasantry of Jamaica, and deservedly so, being cheap, satisfying and highly nutritious. The use of this is not by any means confined to the peasantry. The thin cassava cakes, usually called cassava wafers, toasted and eaten hot with butter are one of the most delicious tea delicacies in the world. If a regular supply were put on the English or American markets, properly advertised, a demand which would warrant a huge industry, would inevitably spring up. There is only one draw back, and that is the delicate texture which renders them difficult to transport. The starch made from cassava is superior to potato and little inferior to arrowroot, and the yield per unit is about double that of potato, when it is added that the yield of tubers per unit is also double that of potatoes the superiority of the tropical starch producer is apparent. It must however, be noted that cassava is a tropical plant and refuses to be cultivated successfully anywhere else. Costly but unsuccessful attempts have been made elsewhere.

Planting of cassava can be done twice a year, in the Spring and the Autumn, the planting is done by making cuttings of the stems and it is possible to extend the area very rapidly by this means. Usually very little ground cultivation is given to the plant, but where this is done very heavy yields of tubers result. The plant matures in twelve to eighteen months. There are many varieties and it is always necessary to be very respectful to local conditions, and, while there is no doubt that like all other plants much improvement might be wrought by experiment and selection as well as the raising of new varieties, it is necessary to proceed at first on strictly conservative lines.

Cassava suffers little from pests, being a vigorous, healthy plant. In districts where the rainfall is small, caterpillars injure the young growths, but never to the extent of killing the plants, but they do delay the maturity of the crop.

Coco-nuts.—"The low alluvial flats, near to the mouths of rivers, more especially lands subject to occasional inundations, are the best situations for the cultivation of the coco-nut, for in these places the alluvial loam is usually rich and deep . . . . The yield of nuts depends on soil, climate and cultivation, and, as may be imagined, the crops of different trees vary widely. With a good climate, a fair average soil, and judicious cultivation, the return ought to be at least fifty nuts a tree, and at twenty-five feet dis-

tance, this would give a yield of 3,500 nuts per acre. By the application of suitable manure, the returns may be increased to eighty nuts a tree, or over 51,000 per acre, but such a yield cannot be expected from the light sandy soils of the coast-line."—*Dr. Nicholls.*

Coco-nuts are grown in Jamaica nearly everywhere, as no part of the island is further than thirty miles from the sea, but plantations should be under 1,000 feet elevation and as near the sea as possible. The returns in Jamaica are above the average, probably about 100 nuts per tree on well conducted plantations.

The coco-nut crop of 1920 showed an increase of four million nuts over that of 1919. Two special varieties of coco-nuts have recently been imported from Fiji.

Coffee.—Coffee Production in Jamaica may be divided into two sections, (a) the Blue Mountain industry, above an elevation of roughly 2,000 feet, and (b) the settlers' coffee (generally an item in a mixed cultivation) in other parts of the southern and eastern parishes as well as in the foothills of the Blue Mountains, roughly below 2,000 feet. The former is in a class by itself, and produces the best and highest priced coffee in the world, though it has been run very closely of late years by Costa Rican coffee. It consists of the product of the few surviving estates proper, grown at altitudes varying from 2,000 to 4,000 feet, and of most of the settlers coffee in the same districts (2,000 to 3,500 feet) purchased and properly treated by them along with their own coffee. The past policy of granting 40/- licenses to any irresponsible person who wanted them has spoilt and depreciated the value of a large production of the settlers' coffee in past years, but improved legislation has recently been introduced, from which good results may be anticipated. The high values of war years up to 1920 succeeded a long period of intense depression caused by a low market and continuous hurricanes, which brought the industry within measurable distance of extinction, and which caused a steady stream of emigration of all the best male elements in the population, which has resulted in a scarcity of labour which even now greatly retards what otherwise might be a very quick recovery. The few larger estates favourably situated, may be expected to make steady progress if values hold, in spite of labour difficulties, but several small ones have "gone out" for good—unless taken up by small settlers. Although on two or three occasions in late years the English market (which takes all the coffee) has shown signs of being overstocked with high grade coffee, it is probable that England will take all the coffee Jamaica can produce under any conditions likely to prevail for some years to come, at remunerative figures. Some estates, and a considerable "settler" industry, used to exist in Manchester, but both have fallen to a low ebb.

A large amount of coffee of medium to good grade (it might be much better if properly handled) is grown by settlers in mixed

cultivations in practically all the parishes except the western ones, and this constitutes the bulk of the island's coffee production. High values should do much to revive and stimulate this cultivation in the next few years, if not held up by the steady and continuing emigration of all the island's best labouring elements.

Practically everywhere except in the Blue Mountains, "long-top" coffee is grown, i.e., the trees are allowed to grow to their natural height, and pruning consists of little but taking off exhausted stems and allowing new ones to grow. The reason of this is that through most of the island there is a subsoil of marl, and if the trees are "topped" the tap-root strikes down till it meets the marl, resulting in the death of the tree. In the Blue Mountains this condition does not exist, and the trees are "topped" at heights varying from 3 to 6 feet, according to whether the situation is exposed to wind or sheltered. This facilitates handling, picking and pruning (in this case a complicated business) and increases production.

Cultivation may be summed up in a few principles. (1) Keep clean: (2) Prune regularly: (3) Keep the soil to the roots on steep land: (4) Mulch, or "pad" wherever possible.

Below 2,000 feet shade is necessary; from 2,000 to 3,000 it is advisable to a limited extent; and above 3,000 feet it is harmful, the more sun and light and air the trees get the better.

The banana (in high windy situations the China variety) is the most valuable adjunct to coffee cultivation, especially in young fields. It agrees well with coffee, gives what shade is wanted, provides the most valuable moisture and "mulch" in dry soils (lop up and split the old stems and lay them flat side downwards round the coffee plants), and helps the local food supply (which mostly helps itself to the fruit!) They can be trimmed out after the coffee grows. Coffee is a surface feeder, the tap root merely anchoring the plant. In the mountains almost any kind of land will grow good coffee, even a heavy stiff clay, *provided it is mulched,* and kept mulched—stable manure where available, cane trash, fox tail grass, almost any sort of bush failing anything else, will maintain a never-failing food supply. In the higher altitudes coffee is more inclined to make wood than fruit, and this tendency is accentuated after the tree is about 20 years old.

Not so very many years ago, coffee was an important item in the island's export list, and there is every reason to hope that it may soon be so again, if only the inertia caused by depression and emigration can be overcome. The Cuban slump has checked emigration, and labour conditions, though still difficult owing to the continued high price of local foodstuffs, are somewhat easier. Medium and low grade coffee has got back to more or less normal value, but Blue Mountain proper fetched the highest figures on record during 1921—the crop, however, being very short.

High grades seem likely to hold their value well, though probably not at the recent figures—over 200/- per cwt.

W. H. Landale.

Cocoa.—The growing of Cocoa in Jamaica is, like our fortunes in general, in Jamaica, dependent on the cultivation of Bananas. It is often said that where Bananas will grow Cocoa will grow too. While I do not regard this as wholly true, it is a fact that where Bananas will not grow, Cocoa will certainly not. Of all the crops grown in Jamaica Cocoa is perhaps the most fascinating, providing soil, climate, altitude and rainfall are suitable, and if the plants are taken proper care of from their growth up, there is no crop which gives so little trouble, barring hurricanes. Some of the large plantations such as New Ground in St. Ann, Worthy Park in St. Catherine, Layton Valley in Portland and many too numerous to enumerate in St. Mary, are splendid examples of what care and high cultivation can do. Some of the small settlers in St. Mary responding to the stimulus of the competitions, organised by the Instructor there, for prizes subscribed or provided by the proprietors in that parish, well nigh reached perfection, and demonstrated that it is easily possible to grow the crop in Jamaica absolutely free of disease, and even when through neglect the trees have become diseased to resuscitate them, and in a short time have fine healthy cultivations free of disease bearing heavily. Even the bugbear of hurricanes can be easily fought provided the fight is commenced promptly after the visitation.

The usual method of establishing a cocoa cultivation in Jamaica is to plant through banana fields, when these are eight months old. Fine healthy plants can be bought from the Government Botanical Gardens at a half-penny apiece, and these planted in the quineux of the banana plants, all other things being suitable will usually commence to bear at four years of age, and be in full bearing at from six to seven.

The ground cultivation of the plants is of course the same as their nurse plants the banana. It is not necessary to go into that here, but cocoa being a permanent crop and a long lived tree, it is necessary that it be taken the greatest care of. No tree keeps freer from troubles if carefully handled. No tree can have more troubles if carelessly handled. The bark is soft and sappy and easily damaged and the fungus diseases waiting to find entrance through any abrasion are many, and subtle, but without the abrasion they are quite harmless. In pruning, clean cuts must be made, and if of any size, a styptic applied, or fungus spores find entrance, the branches and trunks become diseased and the greatest trouble ensues. But all this is well understood and any Agricultural Instructor will cheerfully demonstrate the art, and very many small settlers thanks to the Instructors of the Jamaica Agricultural Society, are past masters of it. Should a hurricane damage a cocoa cultivation

all that is necessary is for the owner to get to work promptly and to cut away carefully all damaged limbs, and the trees, in the rainy weather that usually follows hurricanes, will generally recover in a most wonderful way. St. Mary is undoubtedly the premier parish for cocoa. The soft rich soils, humid climate and well distributed rainfall are the ideals for cocoa.

Permanent shade is a necessity and there are many suitable trees, including rubber. The breadfruit too, makes a good shade, is also a good revenue producer, the fruits being always saleable, besides being splendid food for all sorts of animals. The yield of cocoa per acre is as variable as the prices. A good plantation yield is six hundred-weight to the acre, while this is easily doubled in small cultivations favourably situated. The larger the yield the smaller the expense for upkeep. Everything depends on the suitability of the land and the management. But it would be a poor acre of established cocoa which did not give a yield of £10 net per annum.

The curing of cocoa in Jamaica is done on the Ceylon style on many plantations and these have well recognized and appreciated marks or brands and are sought after and good prices paid for them in the markets of England and the United States. If it is not desired to cure the cocoa on the plantation, central factories are always ready to buy the cocoa in its wet state and to pay the growers a good price.

Altogether cocoa cultivation is a pleasant interesting life to the man who knows how; but let the beginner beware of pitfalls, for they are many and deep, and go to learn his business with some good planter before embarking on what should be a pleasant and profitable life, but often through ignorance is not.

W. Cradwick.

Ginger.—No matter where ginger is grown, when it appears in the chemist's shop it is almost invariably labelled "Jamaica Ginger," because Jamaica is its popular habitat. Although grown in other places, the finest ginger comes from Jamaica where it is grown, and only can be grown commercially in certain districts. Its requirements are a cool equable temperature, a regular rainfall, an elevation of over 2,000 feet, and a rich clay loam soil. Such conditions are obtained mostly in the central districts of the island on the borders of the parishes of Manchester, Clarendon, Trelawny and St. Elizabeth, while it is also grown in the northern part of Westmoreland and in the hills of St. James. There is, however, no extensive acreage under cultivation. The real cultivation is not in acres as it is grown almost exclusively by small settlers who own or rent small pieces of land.

Ginger is usually planted between April and June; and the crop is ready for picking between December and March following. With seasonable weather and fair attention bestowed on the culti-

vation, the grower might calculate upon an average of 2,000 lbs. of cured ginger per acre.

Grape-fruit.—Until about thirty years ago grape-fruit in Jamaica were only gathered from trees growing wild in the pastures, and in many districts they were not distinguished from the forbidden fruit or from hog-shaddocks. A limited quantity of grape-fruit had always been exported to America and sold at good prices. But its delicate flavour and health-giving qualities (particularly in the case of diabetes) becoming more gradually known, it rapidly came into favour in the United States. Its export fell off during the war.

Kola.—Kola, or Bissy, is readily grown in parts of Jamaica. Undried Bissy or Kola nuts are much more profitable than dried ones. For instance, a tree which would give 100 pounds of dried nuts per year will yield 250 pounds of undried nuts. In other words, in drying 100 pounds of nuts the planter loses from 60 to 75 pounds of moisture as every 100 pounds of dried nuts shrink to less than 40 pounds. Besides this, it takes from one to two weeks to spread them out and turn them over and dry them. In selling the undried nuts, if the planter gathers 100 pounds from the tree he takes 100 pounds into the market and gets paid for it. In other words, he will get paid for from 60 to 75 pounds more than he would if dried. He will have two or three times the crop to sell.

Limes.—"Limes grow best near the sea up to an elevation of 500 feet. The soil should be light. The yield varies, but under favourable circumstances may be as much as from three-quarters to a whole barrel from each tree."

Lime-juice, both raw and concentrated, is regularly exported from Jamaica, but the industry is not very remunerative.

Logwood.—This tree was introduced into Jamaica from Honduras by Dr. Barham, in 1715, and later on it was carried to other parts of the West Indies.. . . . Logwood is used in medicine as an astringent, but its principal use is as dye.

"Logwood will grow well on all soils, except loose sands and heavy clays. It grows best, however, and produces finer heartwood on moist rich soils where there is an abundance of vegetable matter. The climate must be hot, but not arid: although the plant, when it has become firmly rooted in the ground, stands a drought very well . . . Logwood can scarcely be said to be cultivated for most of the blocks are cut from self-sown trees. But waste lands unsuitable for other cultivations, may with advantage be planted with logwood, and properly tended trees will always give a finer product than those growing wild. . . . In Jamaica quite a large business has been established in digging and exporting logwood roots left in the ground when the trees were felled during the last twenty or

thirty years. Some idea may be formed of the importance of logwood as a dye when it is remembered that the imports into England alone are valued at more than a quarter of a million sterling for a single year.—*Dr. Nicholls.*

Most of the logwood grown in Jamaica is dealt with by the local dye factories, and with the high cost of freight now ruling it is evident that most of the logwood crop will, in the near future, be converted into "Extracts" and shipped in this form.

After a very successful year in 1920, the logwood industry, with others, sustained a set-back, owing to a marked decrease in demand for the dye, and in the future it will have to fight not only against German aniline dyes, but against an increase in that industry in both the United Kingdom and the United States which were developed during the war.

Nutmegs.—Nutmeg trees require a deep, rich, loamy soil moist, but not swampy, with a humid atmosphere. They thrive best in shady river valleys from sea level up to 300 feet, but they will grow in favourable situations up to an elevation of 2,000 feet. . . . The trees are a long time coming to maturity, not producing a crop, as a rule, till they are nine years old; and only when they first flower, at 6 to 7 years of age, is it possible to determine whether they are male or female. A very small proportion of male trees is left for fertilisation by insects; the rest are cut down and fresh plants are substituted. The fertile trees continue to produce fruits for 70 to 80 years. On an average, each tree will yield ten pounds of nutmegs, and about one pound of mace every year; and when highly manured it is said they will produce ten times that amount. . . . . Mr. I. Reece, late Resident Magistrate, writes as follows:—"I cannot tell you how very glad I am to know that you are endeavouring to get people here to go in for nutmegs. Ever since I came to this colony, I have been trying to impress on those with whom I have come in contact and who possessed lands adapted for the growth of that valuable article, the great fortunes to be made thereby. I know Grenada well, having been there on several occasions. There are lands here as suitable in every respect for the cultivation of cocoa and nutmegs as there are in that island. As regards the value of nutmeg trees, I know an old man living about five miles out of St. George, when I was there last (1884) who told me that, from two trees in the preceding year, he got £30."—*Bulletin of the Botanical Department.*

Oranges.—"The climate of Jamaica is so well adapted for it that the orange grows in nearly every part of the island, and the soil is so fertile that it grows without any kind of cultivation or care of any kind; anywhere the seeds are thrown they grow readily and produce good fruit. For a good many years there was no trade done in this fruit; the birds seemed to enjoy them and no one dis-

puted their right to do so. Many persons are under a false idea that the orange is a very perishable fruit; this is not really so, for, if the fruit is carefully gathered and has received no damage, it can be kept for twelve months easily. If the fruit is properly handled it can be shipped to any part of the world in good condition. Not very many years ago the trade began with the New York market, and, although the rot was very severe, the high prices shippers got for the fruit still gave such large profits, that it paid them to run the risk. The demand was so great in America for the fruit that shippers only sought to put in large lots without any attempt to improve the quality of the fruit or the mode of handling and packing, etc. The very high prices obtained in New York for the very inferior kind of fruit shipped there, induced large capitalists to go into the cultivation of oranges in Florida; neither the soil nor the climate of that place is exactly suitable for its growth, yet by means of good cultivation and careful handling they have succeeded so well that they are able to put into the market at the present time nearly five million boxes of oranges per annum. The Florida crops begin early in November and last till the end of February, so that our best market for Jamaica fruit is August, September, October, March and April. In Florida they are working their cultivations so as to bring in the fruits in the early and late months."

War conditions were hostile to the industry. In 1920 orange oil realised £90,000 or about twice that received for the fruit.

For the citrus industry, which years ago received a severe blow by the closing of the American market, a new era is opening in view of Canadian reciprocity.

Pimento.—"This is a very pungent spice, and is known as 'Jamaica Pepper' and 'Allspice.' The tree, which is of moderate size, growing to a height of some thirty or forty feet, with a circumference at the base of the trunk of about three feet, is a species of myrtle. The wood is covered with a greenish-gray bark, which is smooth and shining in appearance; the leaves are a dark and very glossy green, and when crushed in the hand emit a strong aromatic odour. The general appearance of the tree is very striking, owing to the colour of the bark, which causes every tree to show up through the dark green of the leaves, with a peculiarly beautiful effect. It has been thought that Jamaica is the only place where this spice is to be found, but this is not so. It has been found in parts of South America, but, owing to the expense of the gathering in those places, it would prove a very unprofitable article of export. In Jamaica, however, where labour of a kind is comparatively cheap, we can gather in the spice at a price which allows of considerable profit to the grower, and yet gives the labourer a very fair wage for his time. Another erroneous idea respecting pimento is that it will not grow if planted by hand, but must

be dropped by birds on the ground. The birds certainly are very fond of the ripe berries, and it is a fact that nearly all our pimento trees are planted in this way, but it is a great mistake to suppose that it is necessary for the seed first to be planted by a bird, for if a ripe seed is washed and cleared of the external pulp, and then planted, it grows readily. The pulp however must be removed, for, if not, it dries and forms a hard leathery skin, which will be in the ground for an indefinite time, and prevent the seed from springing. There are two kinds of pimento trees; the fruitful or bearing tree, and the unfruitful or, as it is commonly termed, the male tree. They are very much alike in appearance, and can only be distinguished by experienced eyes. It is held by botanists that the so-called "male" trees are not necessary to the fructifying of the bloom on the bearing trees, and that they are simply barren trees of no use to the grower, and, excepting when they are useful as shade trees, are better out of the way. Many growers, however find it difficult to reconcile this theory with actual experience, holding that when all the "male" trees are cut out, the yield of the other trees is not equal to what it had been before the axe was put to work. A pimento tree under favourable circumstances begins to bear when about eight or ten years old, but it is not in full bearing till about eighteen or twenty years. It will go on bearing if properly treated for a very great number of years—longer than the average life of a man. The berry, which is marketable product of the tree, and is the 'allspice' of commerce, is a small round fruit about the size of an ordinary black currant. They grow in clusters on the tree, and are in the best condition for picking when full, but not ripe. When ripe they are of a glossy black colour, sweet and very spicy in flavour, in fact very pleasant to the taste. The full, but unripe, berry is more spicy and somewhat peppery and astringent. The process of gathering is carried out by sending a lad up the tree with a long stick with a crook at the end; with this he catches the long outer branches, and bending them back till within his reach he snaps off the smaller ends where they are about the thickness of an ordinary walking cane, and throws them down to the ground. In this manner, he breaks off all the small branches upon which he finds the pimento berries hanging, and at the same time effectively prunes the tree; without such pruning the tree will not bear regularly. The tree thoroughly "broken", women and children gather up the branches, and sitting down they pick off the berries into baskets, taking care to winnow out all the stems and leaves, and leave only the berries. At the close of the day the baskets, full with the pimento, are brought to the barbecues, and then measured; the quantity picked by each person being entered up in the barbecue book, the picking being paid for at the end of the week.

The barbecue is the place where the berries are dried and prepared for market. It is a large paved court, the size depending

on the average quantity of pimento picked on the property. It is sub-divided into "beds" by a low banking so that the pimento picked on one day and which has begun to dry does not mix with the green fresh spice of another day's picking. When a sufficient quantity has been thrown upon a "bed" it is spread out and exposed to the sun, a man with a wooden rake being employed to keep turning it over so that all sides of the berry may have the benefit of the heat. Pimento takes from six to ten days to cure in this manner, the length of time being affected by the heat of the sun's rays. A good dry breeze is a great help in the curing, and quickens the process materially. Tarpaulins should be provided for every range of barbecus, for the pimento should not be allowed to get wet while the drying process is going on. The damp spoils the quality of the spice and affects the bright brown colour, which is the chief point looked to by purchasers. The berries are known to be thoroughly dry when, upon taking up a handful, and holding it firmly in the hand, a sharp, dry, crisp, rattling sound will be heard, if shaken near to the ear. When this is noticed, it can be gathered up and stored, till the time comes when the crop being over, it is passed through a machine for fanning out all dust and leaves, and then bagged ready for shipment.

The average production of pimento is about 50,000 to 60,000 bags of about 150lbs. weight per annum for the whole island. When sold in the island, the price is calculated per 100lbs., and the average price for the past 5 years has been 15/- per 100lbs. We have known pimento during the last twenty years as high as 40s. per 100lbs., and for a good many years 25/- ruled as the value. Plantation pimento will of course, always fetch a higher price than settlers' produce, owing to the quality being superior—not from any fault on the part of the spice itself, but from the careless manner of curing on the part of the settlers as a rule. St. Ann is the principal pimento growing parish in the island, but St. Elizabeth, St. Mary, Trelawny and Manchester produce large quantities also.

Adam Roxburgh.

The Government laboratory has conducted experiments for the production of pimento-leaf oil from pimento leaves. It has been found that pimento leaves yield about 1.8 per cent of eugenol, from which iso-eugenol and vanillin can successfully be obtained. It has also been found that iso-eugenol can be produced by the appropriate fermentation of pimento leaves. If a market can be found, Jamaica can produce 100,000 pounds of pimento-leaf oil per annum from materials at present wasted.

Rice is cultivated by East Indians in Westmoreland: but it has never been much developed as an industry.

Sisal Hemp.—Sisal can be grown with success on any soils, derived from the limestone in Jamaica. The clays and alluvial

gravels derived from non-calcareous volcanic rocks should be scrupulously avoided, as, on these soils, the Sisal plant poles prematurely and financial failure will ensue.

Landowners who take up the Sisal industry should recognize that 200 acres is the minimum for a self-contained project. An ideal site should provide for a first start of 200 acres and 100 acres yearly until 700 acres have been planted when the original 200 acres should be replanted, preferably with plants from a nursery grown from bulbils.

Fortunately the requirements for water are not very great as the decortication requires no water, and only a supply for the engine and the workers is necessary. The manufacture is very simple and the work-people of Jamaica find the Sisal industry to afford congenial and remunerative employment for men, boys, women and children.

Sisal hemp is now commanding a great deal of attention, and this must be recognized as a valuable industry which is specially suited for the limestone areas in Jamaica where other explorable products cannot be grown. A yield of one ton of fibre per acre has been obtained for the first crop of Sisal on a new plantation in Clarendon. The 5 acres each of Sisal and Henequen planted out in 1914 on a piece of the worst land at Lititz in St. Elizabeth were tested for yield and quality of fibre. The Sisal gave larger leaves, heavier leaves and a higher percentage of fibre than the Henequen, although the latter were the larger plants when first planted out. The fibre from Lititz was reported on by a trade expert in New York as of "unusually good type," and was valued on February 11th, 1919, at £75 per ton.

The yield of Sisal fibre at Lititz with plants set out at 6 feet x 5 feet would thus appear to be at least half a ton per acre for the first crop. The cost of bringing an acre of Sisal to the reaping stage at Lititz has been about £4. There are established 500 acres in Sisal at Lititz, and plants for a total of 900 acres have been provided. The land at Lititz had been so useless hitherto that although bounded by a main road no one had ever been willing to pay taxes on the land or to own it.

The "Prieto" machine has been found a great success and a planter in Clarendon has manufactured Sisal fibre in an efficient and up-to-date manner in Jamaica. An important point in connection with economic shipping is the use of a good cotton baler.

There is a considerable demand for rope in the colony and steps have been taken towards the establishment of a rope factory for the utilization of home-grown fibre.

Areas suitable for Sisal which suggest themselves on a preliminary consideration of the matter are.

1. Portland—Coastal lands east of Manchioneal.
2. St. Thomas—Coastal lands from Yallahs to the Eleven Mile on the Windward Road.

3. Clarendon—The limestone area north of the Vere plain. —coastal limestone lands west of Black River.
4. St. Elizabeth—the Savannah lands of south eastern St. Elizabeth.
5. Manchester and St. Ann.—Any accessible areas of red soil or limestone lands throughout the whole parishes.
6. Trelawny.—Dry limestone lands south and south-east of Falmouth.
7. Hanover and St. James.—Second class limestone lands.

Considerable areas of Sisal have been planted in the May Pen district in Clarendon and at the Government plantation at Lititz.

Sugar.—Formerly the chief source of the wealth of Jamaica, sugar, just before the outbreak of the Great War had fallen to so low a standard of production that it had almost become a "minor product." In 1913 less than 5,000 tons of sugar, valued at £52,000, were exported from Jamaica.

During the war, with the encouragement of good prices, the sugar planters made great efforts to extend their operations with the result that the exports of sugar rose to 15,000 tons in 1915, 28,000 tons in 1916 and 32,000 tons in 1917 (valued at £700,000.)

With the granting of Imperial Preference for sugar by the United Kingdom the outlook for sugar and rum in Jamaica is now of the brightest, and there is reason to believe that sugar will again become the chief agricultural industry of the island.

The chief disadvantage under which the sugar industry has laboured in the past in Jamaica has been the small size of the estates and the lack of efficiency in manufacture necessarily involved in the small scale production of sugar.

Central factories are now recognized to be necessary for economical manufacture and the centralising of the sugar production of the island is now receiving the attention which its vital importance demands. A central factory has been established in St. Catherine whereby a large output of sugar and rum will be obtained from agricultural areas previously devoted to other crops than sugar cane.

Improved sugar canes are also recognised to be of great importance. New canes are being raised and tested in other West Indian islands and some promising seedlings have been produced in Jamaica. The following seedling sugar canes are considered to be valuable for local conditions:

B. 208; B., 6450; D., 625; J., 72. 'Uta.'

What cultivation can do in improving the growth and production of cane has been well illustrated by the results of a few progressive sugar planters. Deep ploughing, sub-soiling, green manuring with cow-peas, frequent harrowing and cultivation are practices vital to the success of cane cultivation on most Jamaica

soils. There are estates where good cultivation alone has turned a moribund property into a source of splendid profit to the owners.

Large stretches of the most unctuous loam ever blended in an alluvial plain are available for sugar cane cultivation in certain districts in the island. In the past, failure has attended sugar cultivation on certain of these lands owing to an entire failure to appreciate the vital necessity of deep and thorough drainage. With a tropical rainfall this is far more essential than in a temperate clime.

At least ten times the amount of fertilizers at present applied to cane land in Jamaica is demanded in the interests of the industry. It is granted on lands where cultivation is neglected and the proprietor is satisfied with the minimum crop which an untilled and uncared for soil is capable of producing, the use of fertilizers as basic slag or potash and nitrogenous manures could be extensively used and remunerative increase obtained. A proprietor once told the writer that the use of fertilizers had encouraged him to continue his property as a sugar-estate and to secure a profit, whereas, before he made serious losses owing to the low yield of cane.

A series of experimental plots to test the profitable manuring of the sugar cane was undertaken by the Department of Agriculture in all the chief sugar districts, and results applicable to each locality are available to guide the planters as to the judicious use of fertilizers.

This enterprise is now being revived and with better prices for sugar the possibilities of profitable manuring of canes are greatly increased.

Tea.—There is at the present time only one tea plantation in the Western Hemisphere, at Ramble in St. Ann, Jamaica. A plantation formerly existing at Summerville, South Carolina, has been recently abandoned, as it was found that the flavour of the tea was not good.

Varieties of the tea plant were introduced in Jamaica in 1868, and were planted in the public gardens on the Blue Mountains, some 4,900 feet above sea level, where they grow well. Some twenty years later a plantation of about 13 acres was formed in the neighbourhood of the gardens at Cinchona, but the cultivation was discontinued and although the bushes are still growing well, it has never been resumed. In 1896 the plantation at Ramble in St. Ann, was commenced. Its progress at first was very slow, every step having to be tested by experiment. The soil being different to that at Cinchona, the rainfall less than at that place, and the elevation only 1,600 feet above sea level, it was necessary to commence by trying whether the plant would grow under the altered conditions sufficiently well to make it worth while to incur the great initial expense of forming a plantation. This test was made with

250 plants and a packet of seed from the Cinchona gardens. The result being favourable, the cultivation was extended as plants or seed could be procured; but, the quantity not being large, for several years only a small average could be planted. Of course seed could have been imported, but it was decided not to do so for two reasons; firstly, that the tea grown might be homogenous in character, and secondly, for fear of importing certain enemies of the plant with the seed. Latterly the cultivation has expanded more rapidly, seed being obtained from the plants first put in; there were in 1912 about 100 acres in bearing, with nearly another 100 acres of young seedlings.

After demonstrating that the plant would grow in St. Ann, it was necessary to experiment in manufacturing the tea from the leaf, to judge whether its quality would justify a heavy expenditure on machinery for curing it. This test having been passed, machinery was procured and tea prepared for market, the first occasion being at the Thickets Show, in August 1903. Since that time additional and improved machinery has been set up, and, with the experience gained by practice in the manufacture a good class of tea is being turned out. In 1919 the factory and machinery were destroyed by fire, but new machinery was installed in a new factory.

Tea is essentially a factory crop; it requires a large initial outlay for buildings and machinery; and there must be a considerable expenditure for keeping the ground clean while the plants are growing, about five years. In Jamaica this item constitutes a serious handicap on the planter as compared with India, where the rate of wages is much lower. For these reasons, tea cultivation requires a much longer period of waiting before it can be remunerative than some other cultivations, such as the banana; but on the other hand it is not subject to any great risk from hurricanes, and it is a crop with many advantages for the settler who lives within reach of a factory. He can grow the plant in his provision ground without stopping his other cultivation, and when the plants are large enough he will have at the factory at all times a market for his leaf.

Timbers.—The principal timbers of Jamaica are, for *posts,* cashaw, boar-wood, pigeon-wood, candle-wood, wild ebony (or bull's hoof), male pimento, juniper cedar, fiddle-wood and bullet-wood; for *railway or tramway sleepers,* bullet-tree, fiddle-wood and boar-wood; for *carpentry,* cedar, bullet-wood and broad-leaf; for *cabinet-work,* mahogany, cedar, yacca, mahoe and satin-wood. Boar-wood contains a juice that blisters, and is proof against insect life for a long period. It is the best description of wood in the island for lasting between earth and air; it is also excellent for paving stables, streets, etc.: it is elastic and durable.

In 1896, specimens of 22 timbers were sent to the Imperial Institute for testing, with the following result:—"The lightest tim-

ber of the series was mountain mahoe, weighing 32¼ lbs, per cubic foot or a little less than ordinary pine used in this country (England). Considering its very low density, its strength is fairly good. Next in order of density is Blue Mountain yacca which weighs 38½lbs. per cubic foot, and the strength of which is distinctly greater than that of mountain mahoe.

The fault of most tropical woods, from a constructional point of view, is their hardness and heaviness. Amongst the Jamaica timbers, there is a group of very hard timbers. Yokewood, cherry-bullet, naseberry-bullet, rosewood and lignum-vitae weigh from 70½ to 75½lbs. per cubic foot. Such woods can be used for very special purposes. They are all considerably heavier than water. Excepting for shearing, the strength co-efficients of the heaviest wood, lignum-vitae, were not very high. . . . Amongst woods of special light weight, mountain yacca, and St. Ann's yacca are good. Amongst woods of moderately heavy character, hog-gum, yellow-sanders, satinwood and mammee-sapota have good strength co-efficients. Amongst woods heavier than water, prune, and the cherry, and naseberry-bullet seem the best. The full report of the test is given in the "Journal of the Institute of Jamaica." Vol. II., p. 292, 1906.

Tobacco.—"In the successful cultivation of this plant there is great, nay splendid future. All that is necessary is an influx of capital which may be confidently expected to produce a percentage at the end of less than 12 months that will compare favourably with any other branch of agriculture whatsoever. The land and soil are all present and it is remembered that in Cuba the celebrated Havana Cigars are beginning to show marked signs of degeneration owing to excessive cultivation, the wonder is rather that the tobacco industry has not been hitherto more energetically pursued in Jamaica. The life of the plant is a short one. Four months in ground, then from the reaping to the curing house, where the leaves are dried, carefully separated each from the other. The slow drying process occupies from six to eight weeks while a quick drying method with artificial heat which is occasionally resorted to take but five days. After curing, the leaves are bulked for fermentation which requires from three to five weeks. They are now fit for manufacture and the final apotheosis.

The acreage at present under cultivation in Jamaica is about 600, and the tobacco districts are to be found in the parishes of St. Andrew, St. Catherine and Clarendon. There is in addition much land suitable for its growth on the south side of the island from the Blue Mountain Valley in St. Thomas to the borders of Westmoreland in valleys or on gently sloping flat land. Very wet districts or high lands are unsuitable. Light well drained and not too rich soils are the best, but actual experience is necessary to test the burning qualities of the leaf produced. The cost

of cultivation and manufacture is about £16 per acre, and large stretches of land in Jamaica are capable of producing as much as 600lbs. on a piece of this size.

If the average Briton were asked the question, "In what part of the British Empire are the best cigars made?" the probability is that he would not be able to reply or that, if he did, his answer would be wrong. The correct answer is Jamaica. The cigar industry is, it is true, comparatively a new one, though in regard to quality, Jamaica cigars have stepped right to the front rank. The quantity manufactured is not very large and they are still comparatively unknown, except to a few connoisseurs. Your true *amateur* is indifferent as to where his favourite is produced. The plains of India, the uplands of Borneo and Sumarta, the swamps of Manilla, or the hard-worked soil of Cuba, disturb not his lethargy. What he seeks is a pale blue vapour rising neatly and firmly from an even gray ash, what he shuns is a black rim mingled with gray; what he seeks is that delicate aroma which never burns his tongue, what he shuns is that acid pungency which destroys his nerves. Good wine needs no bush and the product of Jamaica is essentially the cigar for an unspoiled palate. It is itself its own recommendation.

The tobacco trade is increasing. In 1911, £35,923 worth of cigars and cigarettes were exported; in 1920, £64,975 worth.

The local cigarette industry has suffered a relapse in favour of the imported cigarettes, due in a great measure to the production of an inferior article.

Vegetables.—Almost all kinds of European vegetables may be grown in Jamaica, many with a great deal less trouble than the gardeners are obliged to take to give good results at home. Most vegetables, however, can only be grown in the low lands in the cool weather between November and April; but in the hills over 1,600 feet, most may be grown all the year round. Such as cabbage, lettuce, parsley, cress, spinach, turnips, carrots, beet, radish, tomatoes and potatoes are generally found in the markets all the year round, but such as green peas, broad beans, celery, cauliflower, Brussels sprouts, parsnips, onions, leeks, and asparagus are raised only where some skill in gardening is available or where the master takes personal interest in his garden, as they need the same particular care and attention as they receive "at home." The other vegetables mentioned do not need much care to grow them passably. In addition the following, which are not common in Great Britain except through the medium of forcing houses, are common in Jamaica and are easily raised: egg-plant, pumpkin, cucumber, ochras, chochos, artichokes, pepper. Herbs for seasoning, such as thyme, aniseed, sage, marjoram, etc., are easily raised. The growing of early vegetables during the cool weather in Jamaica, planted in November for northern markets, has been tried, but

has never been persisted in keenly enough and long enough to be said to have been a success; but potatoes, tomatoes, egg-plant, and cucumber are still being experimented with, and it only requires operations to be done on a fairly large scale to make this trade a complete success. The root vegetables available in Jamaica for the table are yellow yam, white yam, negro yam, Indian yam, (yampie) cocoa (Tania) potatoes, sweet potatoes; beside turnips, carrots, beet, parsnip and the green vegetables all mentioned above.

Vine Culture.—The native grape of Jamaica (*Vitis caribaea*) —of which there are two forms distinguishable by their foliage, the leaf of one being entire and rigid in texture, the other deeply lobed and delicate—abounds on the limestone formation of the coast line on the foot hills. The fruit of both is black, small and round, the cluster averaging when ripe about eight ounces in weight. The plant, which thrives in the driest situations, is commonly known amongst the peasantry as the "water withe", and a cane freshly cut from the vine is said to yield enough fresh water to quench the thirst of a tired traveller.

In recent years a good deal of attention has been given to the cultivation of the European varieties *(Vitis vinifera,)* principally with a view to supply local demand. Grapes can be grown successfully anywhere along the south coast near the sea and at an elevation of not more than two or three hundred feet above sea-level.

At a higher altitude the wide range of temperance between mid-day and mid-night has hitherto proved fatal to successful vine culture. The warm, moist night atmosphere of the south coast appears to be specially suitable to vine growth, and fruit of high quality is being constantly grown on vines planted in the walled-in gardens in Kingston.

Many, but not all, of the recognized table-grapes of Europe do well here; and with care and intelligent treatment, from some varieties two good crops can be reaped in one year. All the "Frontignans", do well in both quantity and quality of fruit. The Muscat of Alexandria, the one most generally grown and the greatest favourite as a rule, always does well.

There is a black grape grown by the small settlers all along the coast on the south side of the island, which yields abundant crops with the minimun of attention. This variety is known as Gros Guillaume or Barbarossa.

Thus far all attempts to introduce the native American grapes have proved failures, and it may be accepted as an established fact that they never will succeed.

The season for grapes is practically from May to September, and it is during these months that they are both cheapest and best, but as a matter of fact grapes may be obtained in the market almost the whole year round.

There has, as yet, been no attempt to grow grapes for market on a large scale. It is pretty certain that constant supply would create a steady and considerable local demand. By prudent forethought in the treatment of vines, it might be possible to have grapes from December to March or April, which should bring remunerative prices in American markets. Black grapes of the highest excellence, as Black Hambro, Muscat Hambro and Madresfield Court are too delicate to travel, but Alicante and Alnwick seedling, both varieties of fair quality, and free bearers, are, when well finished, exceedingly handsome fruit, and would be of service. Of white varieties there is only one suitable in every way for travel, viz:—Muscat of Alexandria.

On the plains of Liguanea, in the parish of St. Andrew, there are many hundreds of acres of land admirably adapted to vine culture and to the right man it would be a safe speculation.

BEE-KEEPING

Bee-keeping.—Bee-keeping is an industry which can be carried on in conjunction with other occupations on a small scale, and does not require much capital or land, and has been taken up by many persons of small means. Many of them have little knowledge of both bee-keeping and the requirements of the market. In consequence Jamaica honey (especially Logwood, which is one of the best honeys produced in the world) had once a bad name in the London market; being very often badly extracted, strained and packed. There has been some improvement in the last few years, and as a consequence a corresponding improvement in price.

Bee-keeping as a sole source of income can be carried on by the skillful bee-keeper in Jamaica. Much land is not needed, but a fair amount of capital is required as it is not possible to make a fair living with less than 500 colonies. Bee-keepers from temperate climates must bear in mind that conditions in the tropics are the reverse, there being no wintering problem. The problem confronting the tropical bee-keeper is to keep his bees through the summer months of dearth, when little honey is coming in and the wear and tear of bees and queen is very great, as neither gets any rest. In some seasons bees have to be fed for weeks.

Anyone intending to take up this industry in Jamaica should be prepared to take lessons from skilled bee-keepers in the island. It requires great skill, patience and punctuality. A person who is given to think "I can do that to-morrow" had better leave bee-keeping alone.

There is a good future for bee-keeping in this island provided the bee-keeper bears in mind that honey packed any how will not do; everything from the extractor to the barrel must be perfectly clean.

SILK CULTURE.

Although Jamaica would seem to possess possibilities for Silk Culture, even in a higher degree than many other countries where the industry is now flourishing, forming a considerable portion of the small landowner's yearly income, efforts hitherto made have proved unsuccessful. In 1841 a Jamaica Silk Company was incorporated, but nothing much came of it. In 1893, experiments were made under the direction of the Institute of Jamaica, with silkworms hatched from eggs laved at the Museum hatched from eggs of insects *(Attacus Cynthia)* which feed on the castor-oil plant *(Ricinus communis)*. These were sent to various persons throughout the island. But it resulted in failure: in only one case were cacoons secured and these proved valueless.

The following notes on a successful experiment at Silk Culture have been contributed by Mr. Hofman-Bang:

"Successful silk culture is dependent on three conditions: firstly, soil and climate suitable for vigorous growth of mulberry trees, as the true silk spinner refuses to thrive on any other leaf; secondly, a warm climate where the midday-heat does not exceed 85 degs. indoors, and thirdly, cheap labour.

These conditions are found in many parts of Jamaica, that is, wherever the elevation exceeds 1,700 feet or thereabout. And while in some of the leading silk-producing countries, such as France and Japan, only two or three summer months are warm enough for the worms to thrive in, thus allowing only 1–2 "crops" to be taken, the growth of the worm from egg to cocoon occupying a little over a month, the climate in the indicated parts of Jamaica is practically suitable the whole year round. As regards temperature, the rearing of the worms can be carried out over a prolonged period of the year. This is actually being done in Louisiana, U.S.A., where as many as eight crops are said to have been successfully taken.

In order to test the practicability of silk culture in Jamaica, not the ordinary white mulberry, but two other species of mulberry, especially adapted for silk culture were brought to the island in the latter part of 1920, and a spot in the parish of St. Andrew, at an altitude of 1,700 feet, was selected for the test. The spot is situated in a particularly dry belt with poor, shallow and clayey soil, and far better conditions could have been found almost anywhere else. But, as experts on Jamaica agriculture expressed strong doubts as to the possibility of growing mulberry trees below the very highest altitudes in the island, it was considered best to select an unfavourable spot in order to obtain reliable results.

As the imported seeds sprouted very badly, only a very small number of plants were at first procured, but these soon adapted themselves to the conditions showing excellent growth, and in a few months a test of propagating them by cuttings could be made. This

turned out a perfect success with both varieties and a steady supply of plants for extension of the culture can therefore be relied upon.

The plants were transplanted from nursery boxes into garden and field early in 1921 and have grown steadily since. They do not here lose their leaves in winter as is the case in colder countries, and up to the time of writing they seem to thrive even better in Jamaica than elsewhere. This is the more remarkable as these trees were all stripped entirely of leaves and young shoots at a very immature age in May 1921, in order to feed silk-worms. In other countries the mulberry trees are left to grow undisturbed from 2-4, even 6, years before it is considered safe to pull the leaves, and only a little is taken from each tree, increasing from year to year as the trees grow stronger. In this case not a leaf was left, but within a month these plants were again covered with young foliage; and their further development compares under the circumstances very favourably with that of the proof trees which were left undisturbed. The risk of picking the trees so soon was taken in order to make sure that the silk worms would thrive as, this failing, the whole experiment would have been discontinued before further time and money had been lost.

The test of the worms gave an equally promising result. Eggs of the best strains of the true silk spinner, *Bombyx Mori,* were procured and arrived safely, one lot from the United States via New Orleans, another lot from France via Denmark. Both kinds throve well, passing through their five stages of development, moulting without disease and although the temperature rose to 87 degs., they all spun full-sized cocoons. Only a few hundred worms could be fed as the amount of leaves from the immature trees—mere seedlings at the time—was limited. The feeding was done on trays placed on a rack in the dining room of a cottage. Beyond the regular feeding four times a day with freshly gathered, dry leaves, no special precautions were taken except guarding the worms from attacks by ants. This was done in the usual manner known to every resident in Jamaica, by placing the legs of the rack in small tins filled with water.

These first experiments with mulberry trees and worms having turned out beyond the most optimistic expectations under very trying conditions for the trees, more extensive experiments and the establishment of a nursery for the sale of plants have since been started in St. Andrew in somewhat better soil at an altitude of 2100 feet, and at the same time trees have been planted out in different parts of the island to test their development under varied conditions. Up to the time of writing, January 1922, there is every indication that silk culture can be made a paying proposition in Jamaica. If these experiments on larger scale hold good, it would be a good thing to the island if other people could be induced to take up the industry, especially if several crops can be taken. This will, if possible, be tried this year; but even if only

the same crops as in the other countries can be produced, the industry should prove a benefit to the island, as it would give a large number of persons of the more intelligent classes an opening for adding to their income without any great risk.

As there is a limit to the number of worms each person or family can care for at one time with safety, the industry can not be depended upon for full living, but must be classed as a minor industry, such as beekeeping, poultry raising etc., to which it compares favourably, yielding a better profit with less and more pleasant work and requiring a smaller initial outlay. As it has been already tried, all the usual garden and ground provision crops can be grown between the mulberry trees, thus paying for their cost and planting; and, once established, the mulberries should grow on for a number of years with proper treatment. When the trees are fit to be used presumably at from 12–18 months old, all that is required is a clean room provided with racks and trays that anyone can make with little or no cost. The silk worm eggs necessary for a first trial will cost only a couple of shillings, and even if means for a start on a larger scale are at hand, only a small number of worms should be started with extending gradually as experience and skill is acquired. Except for the picking of the leaves, for which children could be trained, the work is performed indoors and requires no hard labour, only attention and care. Being clean and interesting and causing no smell or noise in the house, the work is well adapted for ladies, and the housewife, the schoolmistress or the post mistress would find that, without interfering with her ordinary duties, she is able to care for a number of silk worms, and in the course of four weeks add to her income an amount ranging from a few pounds up to many times that amount from the sale of the cocoons produced.

When the worm has finished its cocoon which serves as a protection during the chrysalis stage, the worm is killed by heat or by exposure to the fumes of certain chemicals and after a short process of drying in the air the cocoon is ready for sale to the large spinneries where the continuous silk thread up to 1500 yards in length, of which the cocoon is made up is unwound by modern machinery and through a number of processes woven into the well known silk fabrics.

Enormous quantities of cocoons are required annually by the spinneries. The importation of raw silk by U.S.A. amounts to some $400,000,000 yearly; and even if cocoons were produced in Jamaica to an amount that would not be the smallest item on its export list, such a quantity would be readily taken up by the world's market.

P. H.B.

XXV.—FRUITS, VEGETABLES, AND OTHER ECONOMIC PRODUCTS.

Originally compiled by the late William Harris, F.L.S.

Common Name.	Botanical Name.
Fruits.	
Banana ..	Musa sapientum
Blackberry ..	Rubus jamaicensis
Bilberry ..	Vaccinium meridionale
Cashew fruit ..	Anacardium occidentale
Cashew nut ..	
Cocoanut ..	Cocos nucifera
Cherimoya ..	Anona Cherimolia
Custard Apple ..	Annona reticulata
Ginep ..	Melicocca bijuga
Granadilla ..	Passiflora macrocarpa
Grape Fruit ..	Citrus decumana
Grapes ..	Vitis vinifera vars.
Guava ..	Psidium Gujava
Lime ..	Citrus dedica, var. acida
Mango ..	Mangifera indica
Melon ..	Cucurbita Melo
Melon—Cantaloup	Cucumis Melo
Melon—Musk ..	Cucurbita moschata
Melon—Water ..	Citrullus vulgaris
Naseberry ..	Achras Sapota
Orange—Sweet ..	Citrus Aurantium
Orange—Tangerine	Citrus nobilis
Papaw ..	Carica Papaya
Pine-apple ..	Annas sativa, vars.
Pindar-nut ..	Arachis hypogaea
Shaddock ..	Citrus decumana
Sour-Sop ..	Annona muricata
Star-apple ..	Chrysophyllum Cainito
Sweet-Cup ..	Passiflora maliformis
Sweet-Sop ..	Annona squamosa

Common Name.	Botanical Name.
Vegetables.	
Akee ..	Blighia sapida
Avocado, or Alligator Pear ..	Persea gratissima vulgaris
Beans—French ..	Phaseolus
Beans—Lima, or Sugar ..	Phaseolus lunatus
Beetroot ..	Beta vulgaris
Breadfruit ..	Artocarpus incisa
Cabbage—native grown ..	Brassica oleracea
Calalu, or Spinach ..	Amarantus viridis A. gangeticus A. spinosus
Calalu, Jockatoe (See also Indian Kale) ..	Phytolacca octandra
Carrot ..	Daucus Carota
Chocho—White and Green ..	Sechium edule
Cocoe ..	Xanthosoma sagittaefolium
Corn, Indian or Maize—Green Corn Sweet Corn or Sugar Corn ..	Zea Mays
Cucumber ..	Cucumis sativus
Garden Egg ..	Solanum Melongena
Gourd, Bottle, or Sweet ..	Lagenaria vulgaris
Indian Kale, Calalu or Spinach ..	Xanthosoma atrovirens
Lettuce.	Lactuca sativa
Ochra ..	Hibiscus esculentus
Parsley ..	Carum Petroselinum
Pea—English or Green ..	Pisum sativum
Pea—Black-eye ..	Vigna Catjang
Pea—Gungo, Congo or Pigeon ..	Cajanus indicus

Common Name.	Botanical Name.	Common Name.	Botanical Name.
Vegetables, contd.		**Economic Products.**	
Pea—Red, Kidney Bean, Haricot Bean ..	Phaseolus vulgaris	Annata ..	Bixa Orellana
		Bitterwood ..	Picraena excelsa
		Cassava ..	Manihot utilissima
Plantain ..	Musa sapientum, var paradisiaca	Cocoa ..	Theobroma Cacao
		Coffee ..	Coffea arabica
Potato—Irish ..	Solanum tuberosum	Divi-divi ..	Caesalpinia coriaria
Potato—Sweet ..	Ipomea Batatas		
Pumpkin ..	Cucurbita Pepo	Fustic ..	Chlorophora tinctoria
Scallion ..	Allium fistulosum	Ginger ..	Zingiber officinale
Spinach (See Calalu, and Indian Kale) ..		Kola-nut ..	Cola acuminata
Tomato ..	Lycopersicum esculentum	Logwood ..	Haematoxylon campechianum
Turnip ..	Brassica Rapa		
Water Cress ..	Nasturtium officinale	Maize ..	Zea Mays
Yam—Negro, Lucea, etc. ..	Dioscorea sativa	Orange, Sweet ..	Citrus Aurantium
Yam, White, Guinea, Barbados, etc. ..	Dioscorea alata	Pimento ..	Pimenta officinalis
Yam—Yellow or Afou ..	Dioscorea cayennensis var, rotunda	Pine-apple ..	Ananas sativa
		Rice ..	Oryza sativa
		Sisal Hemp ..	Simlax papyracea
Yampee, or Indian Yam ..	Dioscorea trifida	Sugar cane ..	Agave rigida
		Sarsaparilla ..	Saccharum officinarum

XXVI.—THE BIRDS OF JAMAICA.

The following list and notes are abstracted from the "Revised List of the Birds of Jamaica," contributed by Dr. P. L. Sclater to the "Handbook of Jamaica for 1920." In the list popular names have been added to the 42 species which are believed to be absolutely peculiar to Jamaica and may be denominated "autocthonous."

Autocthonous Birds of Jamaica.

			No. in Gen. List.
1	Corvus jamaicensis	[Jabbering Crow]	1
2	Quiscalus crassirostris	[Tinkling Grackle]	2
*3	Nesopsar nigerrimus	[All black Grackle]	3
4	Icterus leucopteryx	[Banana Bird]	5
5	Pyrrhulagra ruficollis	[Red-necked Coffee bird]	10
6	Pyrrhulagra anoxantha	[Yellow-backed Finch]	11
*7	Pyrrhuphonia jamaica	[Blue Quit]	14
8	Spindalis nigricephala	[Cashew Bird]	15
*9	Glossiptila ruficollis	[Feather-tongue]	17
10	Certhiola flaveola	[Jamaica Sugar-bird]	18
11	Turdus jamaicensis	[Glass-eyed Thrush]	19
12	Turdus aurantius	[Hopping Thrush]	20
13	Mimus hilli	[Hill's Mocking-bird]	22
14	Dendrœca pharetra	[Arrow-head Wood-warbler]	34
15	Dendrœca eoa	[Aurora Wood-warbler]	36
16	Vireo modestus	[Plain Greenlet]	45
*17	Laletes osburni	[Osburn's Greenlet]	46
18	Myiadectes solitarius	[Solitaire]	48
19	Petrochelidon euchrysea	[Golden Swallow]	52
20	Elainea fallax	[Sclater's Fly-snapper]	54
21	Myiopagis cotta	[Cotta Fly-snapper]	55
22	Pitangus jamaicensis	[Common Petchary]	56
23	Blacicus pallidus	[Buff-winged Flat--bill]	57
24	Myiarchus stolidus	[Foolish Petchary]	58
25	Myiarchus barbirostris	[Bearded Petchary]	59
26	Platypsaris niger	[Black Beccard]	61
*27	Hylonax validus	[Lusty Wood-king]	62
28	Lampornis mango	[Mango Humming-bird]	63
*29	Aithurus polytmus	[Long-tailed Humming-bird]	64
*30	Siphonorhis americanus	[Long-nostrilled Night-jar]	73
*31	Hyetornis pluvialis	[Rain-bird]	76
32	Saurothera vetula	[May-bird]	77
33	Centurus radiolatus	[Radiolata Wood-pecker]	80
34	Todus viridis	[Jamaica Tody]	82
35	Chrysotis collaria	[Yellow-billed Amazon]	83
36	Chrysotis agilis	[Black-billed Amazon]	84
37	Conurus nanus	[Yellow-bellied Parrot]	85
38	Ara gossii	[Jamaica Macaw]	86
39	Asio grammicus	[Lettered Owl]	88
40	Leptoptila jamaicensis	[White-bellied Dove]	150
41	Geotrygon cristata	[Blue Dove]	151
42	Œstrelata jamaicensis	[Blue Mountain Duck]†	192

The eight species marked with an asterisk (*) belong to Genera which are restricted to the island of Jamaica and are not known elsewhere.

On examining the list we see at once that, as might have been expected, nearly all the species named in it belong to American genera, and are more or less closely allied to species met with in North, Central or South America. The process of modification during past ages must, however, have been considerable, as it has been sufficient to create a *generic difference* in the eight instances above mentioned. But the case of *Todus* is still more remarkable, as its pronounced characters are such as necessitate its elevation to the rank of a separate family (Todidae.) *Todus,* however, is not absolutely confined to Jamaica, as, like *Spindalis* and *Saurothera,* it has representatives slightly modified in form in other Islands of the Antilles.

Of the 57 "Constant Residents" which are not confined to Jamaica, but are also met with elsewhere, it is only necessary to say that they are all American forms although in a few cases they extend their ranges into the Old World.

The Winter-Visitors, which are about 52 in number, are composed chiefly of members of the three groups of Wood-warblers (Mniotilidae), Ducks (Anatidae), and Waders (Charadriidae and Scolopacidae) which breed in North America and migrate south in the winter. The Occosional-Visitors and stragglers I reckon at about 43, but, their number will, no doubt, be largely increased when greater attention is paid to the Birds of Jamaica.

On the whole the general character of the Birds of Jamaica shows that the Island is part of the Antillean Sub-region of the great Neotropical Region, as has been explained in the "Geography of Mammals." The main features of the Avifauna are Neotropical, as proved by the Tanagers, Humming-birds, Parrots and Pigeons. But there are also in Jamaica some remnants of an older Avifauna, as testified by such peculiar forms as *Laletes, Siphonorhis* and *Glossiptila,* and above all by the Family Todidae which is absolutely restricted to the Greater Antilles.

It should be always remembered, however, that in the winter season the ordinary facies of the Jamaican "Ornis" is materially altered by a rush of immigrants from the north, which essentially modify the Avifauna at that times of year.

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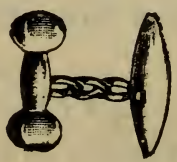

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